FLASHES AND PLUGS

THE INSIDE STORY. Russell Polhemus of Novato, Cal., recently sent TELEPHONY the following choice bit of doggerel clipped from Frank Freeman's column in a local newspaper:

"PT&T's Leroy Stockton at long last was sent out to a nearby subdivision to install a telephone, found nobody home but a note attached to the front doorknob addressed to 'Pacific Telegraph & Telephone Installation Men,' . . .

"One year we've waited, with a grin,
Our icebox full of beer & gin;
Six months we waited, without chagrin,
And then we started on the gin;
Nine months we waited for your knock,
And then we killed off all the bock;
Our cupboards we stocked with Scotch & rye,
Another month bade it good-bye;
Another month, & still no phone,
But never once was heard a groan.

"So as we've waited, without despair,
I think you'll admit that we've been fair;
We did our best to save some beer,
It wouldn't stretch till you got here;
When spring went out & summer came in,
We did our best to save the gin,
As days grew hotter & we grew dry,
The Scotch went quickly, quicker the rye,
But we never lost hope, you said you'd arrive—
A pity it wasn't when we were alive.

"The key's at the neighbor's, the coffee is on;
It's probably cold, we made it at dawn,
But plug it in & help yourself,
Sugar & cups you'll find on the shelf;
Have a cup & take your time,
But *please*, good people, *connect up our line!*"

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The thief, it seemed, had climbed a fire escape, then hoisted himself into a third story warehouse loft occupied by a fashion concern. He ransacked the loft, piled his loot neatly in front of the window by which he had entered. Then he looked out of the window.

It was a few minutes later that the police lieutenant received a call. "I'm not joking," pleaded the thief, "I broke into a building on Bergenline Avenue and can't get out. I want to give myself up."

Police obliged and put him in a cell, which he will also have difficulty in leaving.

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608 S. Dearborn St., Chicago (5), Ill., U. S. A.
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★ ★ ★ IN THE ★ ★ ★ NATION'S CAPITAL

by FRANCIS X. WELCH WASHINGTON EDITOR

Discussion of bright future growth of our national economy and planning to take care of it has become fashionable in government circles. However, such planning carries with it the suggestion that the government will have to be responsible for such plans turning out according to schedule, which, in turn, could lead eventually to a welfare state.

THERE IS a good deal of discussion these days by both government and private economists, as well as amateur economists, on the future growth of our national economy. It has become fashionable in government circles, in recent years, to speak of "Planning for Future Growth." This carries with it the suggestion that the government will have to be responsible for such plans turning out.

There is nothing wrong with planning, per se. Indeed, every alert business management in every industry for many years has had to follow the practice of setting up projection tables covering anticipated growth of business, number of customers, expenses, investments, etc. It is equally apparent that the federal government must anticipate changes in our economy at the national level along such lines.

But the implication of a good many government planners takes us one step beyond that. The implication is that the government has a direct responsibility to do something about the plans, if they fail to turn out according to schedule. They speak of "picking up the slack" in such fields as full employment, or "needful investment," etc. That in turn, could lead eventually to a welfare state with the government managing just about everything—instead of just picking up the slack, or filling the gaps here and there.

Aside from the clear invitation for the government to intrude, if the "plans" do not turn out all right, there is inherent in all such planning a very definite hazard of inaccurate forecasting. A prolonged war, an unforeseen national catastrophe, a world-wide industrial boom, or a drastic change in economic operations, due to such developments as atomic fission, could throw all such plans way out of kilter. And the government economists would then find themselves trying to put the credit of taxpayers, as well as the policy of government legislation, behind an intricate series of adjustments, just to make things turn out all right according to some preconceived plan or timetable. Under adverse conditions, such planning could quickly deteriorate into outright improvisation, no matter with what kind of high sounding titles the government planners might pretend to label their long-range policies.

To reduce this argument to absurdity, one might as well expect the federal government to take on the responsibility of seeing that the national birth rate performs according to some preconceived 10-year plan. Over the past decade, even objective actuarial staticians have had bad luck trying to prophesy the shifts and changes in the birth rate of different nations. Any government planner who tried to predicate his planning on a positively assumed projected birth rate could be made mighty foolish if the stork simply did not cooperate.

Keyserling Compares Telephones With Progress

Your correspondent was recently given some interesting excerpts from a speech by Leon H. Keyserling, made at Boston on Nov. 15 to an industrial group. Mr. Keyserling, who is now a private economist and an attorney as well as president of a group called the "Conference on Economic Progress," was formerly ex-President Truman's chief economic adviser.

Talking about future growth, Mr. Keyserling made an interesting comparison between the growth of our over-all average industrial production and the growth of the telephone industry since 1909 through 1953. These comparative figures are then projected by Keyserling to 1965 on alternative assumptions of conservative growth and maximum growth. The results are quite startling. But here are Mr. Keyserling's own words on the subject:

"I have here a chart which shows the growth in our total national product since 1909, expressed in uniform prices, and shows also the number of telephones in use. Comparing 1909 with 1953, our annual national product expanded more than 3½ times, while the number of telephones in use expanded more than seven times. Comparing 1953 with 1929, the annual national product more than doubled, while the number of telephones in use increased 2½ times. This long-term increase in the number of telephones in use, at a faster rate than the growth of the over-all economy, reflects of course the rising standard of living and the continuous trend toward more conveniences in the office, the factory, and the homes.

"On this chart, I have projected also the potential growth of our national economy over the next 10 years, on three different assumptions, and have correlated this with three different projections of the number of telephones in use. Taking the assumption as to national economic growth which seems to me most reasonable, reflecting an annual average growth rate of 4.2 per cent a year, we could achieve a total national product, measured in 1954 prices, of more than 560 billion dollars by 1965. In that event, I have estimated that the telephones in use could grow from about 50 million in 1953 to more than 92 million in 1965, or by about 85 per cent. If our economy should grow to the full limits of our technology, we could achieve by 1965 a total annual product of more than 700 billion dollars, and the number of telephones in use could about double, or reach a figure of about 100 million."

Without going into Keyserling's charts, what this comparison shakes down to, can be expressed in the following simple table, using the year 1909 as an index of 100:

Year	*Index of the National Product*	*Index of the Number of Telephones*
1909	$100	100
1929	200	250
1953	350	700
1965*	560	1,295
1965†	700	1,400

*"Conservative" forecast.
†Maximum or optimum forecast.

It will be noted that from the years 1909 through 1953, the number of telephones has been growing twice as fast as the amount of the national product. Keyserling goes on to assume that, if the gross national product increases from 85 per cent to 100 per cent over the next 10 years, the number of telephones will likewise increase so that we may even have 100 million telephones by 1965, as compared with 50 million in 1953.

Making all due allowance for population increase, business promotion, etc., this observer wonders if Keyserling's assumption of telephone growth may not be too optimistic. Admittedly the growth of telephone stations outstripped the increase in the national product from the years 1909 to 1953. But will it continue to do so from 1953 to 1965, *in the same proportion?*

Keyserling is using a figure based on telephone growth during a very volatile and dynamic period of the telephone industry in the United States. One need only compare the number of telephones per 100 population since 1909 to realize that this is so. In 1909 there were less than eight telephones for every 100 people in the United States. In 1953 there were about 32 telephones for every 100 people in the United States. That is approaching one telephone per family establishment, disregarding duplication for business establishments, etc.

So, the obvious question is whether this pace will not begin to slow down in relation to the population growth. In other words, if our national population of 160 million people were using 50 million telephones in 1953, does it necessarily follow that a population of 186 million people (estimated) will be using *twice* as many telephones (100 million) in 1965—just because the dollar value of the national product might have doubled during that time?

This is not to suggest that there is any foreseeable ceiling or saturation point on telephone growth in this country—certainly not within the next 10 years. But it is only realistic to consider that in 1909 the telephone, like the automobile business and the electric appliance business, was just getting started as far as mass acceptance and distribution were concerned. The period between 1909 and 1953 was one of exceptional dynamic growth for these industries, by the very reason of the fact that they were comparatively new and just getting started. Compared with coal mining, railroading and shipping or other older and more established industries and utility services, these new-comers burned up all growth records.

Investment and Inflation

But it is in the realm of investment that Mr. Keyserling's comparisons of telephone growth with national product are most startling. Here's an excerpt from Keyserling's speech in Boston on this point:

"In a second chart, it is shown that the annual net investment required per new telephone in use has grown very considerably over the years, measured in uniform prices. This reflects the general trend toward improved mechanisms which is so characteristic of our American economy. And in *Chart 3*, by combining the investment estimates with the telephones in use estimates, there is shown the possible trend in annual investment in plant. This chart shows that, by 1965, with the conservative estimate of a 4.2 per cent average annual rate in over-all economic growth, the annual investment in telephone plant by 1965 could be almost three times as high as the annual investment in 1953 by the Bell System, or rise from an annual rate of about 1 billion dollars for the Bell System to an annual rate of almost three billion dollars for all systems. With a higher average annual rate of over-all economic growth, which is quite possible under our technology, annual investment in telephone plant by all systems could rise to almost 3.5 billion dollars.

"These figures, relating to the past progress and future potential of one great industry, vividly depict the potentials of the American economy. And for the same reason, they depict what can be the future of any firm or industry which by sound policies and clear vision keeps or brings itself within the main stream of American economic development."

This sounds very good, in an over-all manner of speaking. But what would it mean to the telephone business, as a business, if Keyserling is anywhere near right? We all know that telephone investment has been growing in leaps and bounds since World War II. What's more, the investment *per telephone*, which means the dollars required for every station added in terms of plant and equipment, has been growing at a terrific pace. Keyserling seems to think this is a good thing. But is it?

Back in 1945 at the end of World War II, the Bell System investment per telephone was little more than $250 a station. In 1953, it was around $317 per station. (*New* telephone station investment rose from $220 before the war to about $400.) Why? Keyserling says it is because of the "general trend towards improved mechanization." But that is only part of the answer.

Admitting that modern automatic equipment is more expensive than the manual equipment, why is it that a piece of cable or a telephone pole of the same quality or caliber costs twice as much today as it did a few years ago? There is no mechanization here. An operator's chair which cost $19.50 in 1945 costs $37.50 today. The obvious explanation seems to be *inflation;* something which Keyserling ignores. Telephone poles and cables cost more because higher wages have to be paid, and higher taxes have to be paid, and because of other increased operating expenses. And it is this very galloping type of inflation (which the Keyserling sort of planning has promoted, and would accelerate) which could put the telephone industry in the ditch by 1965 if somebody does not put the brakes on.

Look at Keyserling's own figures for growth of investment *per telephone* from an annual rate of 1 billion dollars to 3 billion dollars or 3.5 billion dollars by 1965. What would this mean, in terms of necessary increased telephone rates, to yield a return on such an investment? Just look at the pace at which investments per *new station* would climb, according to Keyserling, compared with the growth of new stations! He foresees an increase in the number of telephones from 85 per cent to 100 per cent by 1965. This means that for every 85 new telephones added during that period, the new investment would be increased from 200 per cent to 250 per cent (or a rise from 1 billion dollars in annual investment to 3.5 billion dollars in annual investment)! To yield a 6 per cent or 7 per cent return on that kind of investment per station, it would be necessary to triple telephone rates in some instances, assuming that wages, taxes, and other operating expenses increase proportionately. Will we see telephone monthly exchange rates at the level of $20 to $25 in our larger cities by 1965?

Inflation has always been bad medicine for utilities with their fixed rate of return, based on regulated rates. But where the inflation has jumped suddenly, doubling over a period of 10 years (which has been our experience since World War II), public utilities have been under the very gun of regulators, at the revenue end of the business.

Inflation never seemed to worry Mr. Keyserling, or other economists of his school of planned economy. Inflation

(Please turn to page 38)

New Devices in Communications

By RAY BLAIN*

THIS IS the second installment of the paper Mr. Blain prepared for the Plant Conference of the 1954 annual convention of the United States Independent Telephone Association. The first installment appeared in the Dec. 4 issue. The third and last installment will appear in the Dec. 18 issue.

* * *

2.09. BULLETIN BOARDS. Bulletin boards are becoming increasingly important in all telephone exchanges. Safety bulletins and other general information must be displayed properly and protected if they are to prove effective.

These requirements appear to be adequately met in a line of bulletin boards or cabinets recently developed and placed on the market. This cabinet is constructed of genuine Philippine mahogany — most attractive in appearance. It has a high lacquered finish with a cork posting surface. A hinged glass door may be locked, if required, to protect the contents. A concealed fluorescent tube provides light through the top panel and over the entire inner surface. The sign panel at the top is of white opaque plastic with the wording sandblasted in with green enamel.

These cabinets' overall measurements are 28 inches wide, 35 inches high and 4 inches deep. The doors may be hinged either on the right or left. They are designed to be used singly or mounted side by side in any manner required.

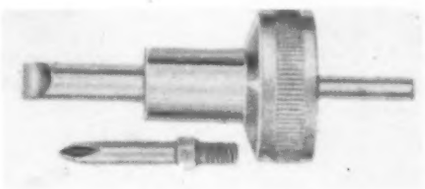
2.10 SECTIONAL STEEL SHELVING. Sectional steel shelving proves a good investment in any telephone exchange. This type proves more economical than wood shelving when its use is considered over a term of years. When any change is required in wood shelves, a major rebuilding job is generally necessary.

With one type of steel shelving now available, only four bolts are required for an entire unit. The shelves are installed without the use of bolts or tricky tools. Any single unit may be moved without disturbing other units. Also, any single shelf may be moved without disturbing the shelves in adjacent units. Small bins of varying sizes may be installed in this shelving to hold small parts, as required.

2.11. POWER SCREW DRIVER. A new device recently made available may be easily and quickly used to convert an ordinary electric hand drill into a powerful screw driving tool. To use, hold the point of the screw in starting hole with left hand, and hold the drill in the right hand, enter the screw driver bit into screw slot and start the drill. As the screw enters the hole, increase the pressure until the screw is driven home.

This tool is designed for use in the production shop as well as on small jobs. It is simple in design and the clutch assembly is held by a simple retaining ring and may be disassembled with any pointed tool. The one wearing part, the friction disc, may be replaced in a few seconds and at a low cost. Tests, however, indicate that even under severe operating conditions, the life of this disc will be many months. The heat treated bit may be removed for regrinding or replacement.

2.10 Sectional steel shelving.



2.11 Power screw driver.

This item drives wood screws up to No. 14 and machine screws and self-tapping screws up to ¼-20. It will fit any drill that takes a ¼ inch chuck. Now available with ⅜ inch and ¼ inch bits; also, Phillips type bits.

2.12. MOBILE POWER UNIT. Mobile power units are becoming increasingly important in the telephone industry, and their uses are numerous. Not only are they invaluable in keeping batteries charged at satellite exchanges during a failure of the commercial power supply, but they have a variety of other uses as well. These units also permit the use of many labor saving electrically operated tools out on the line job. It will operate floodlights so that repairs can be made on important facilities when service must be immediately restored after a storm or disaster.

One manufacturer has provided the following special features on a mobile power unit with a view to making it especially useful to the telephone field:

(1) Light weight and compact. Weight, 1280 pounds, but only 100 pounds is on the towing end for lifting. Trailer-mounted for one man handling.

(2) Slow speed generator 110-volt, 2,000 watts d.c. Extremely quiet operation makes it especially desirable for use in residential areas.

(3) Equipped with a 2500 GPH diaphragm pump of the self-priming type. This pump may be operated from the manhole by push button control. A button on the same remote box may be used to signal the helper from above when his services are required by the splicer.

(4) A six-volt storage battery provides current for operation of the tail light, blinker warning light and emergency service.

(5) This unit may also be equipped with an air compressor designed especially for the supply of dry air for cable testing. The dry air is provided by the use of a moisture separator which removes a large percentage of moisture from the air. Another feature of the air compressor is a special automatic tank drain which will expel water at each cycle of the unit. This unloader device provides smooth operation of the compressor by running in an unloaded position when the air receiver is up to maximum pressure. This compressor may also be used to operate small air motor hand tools when required.

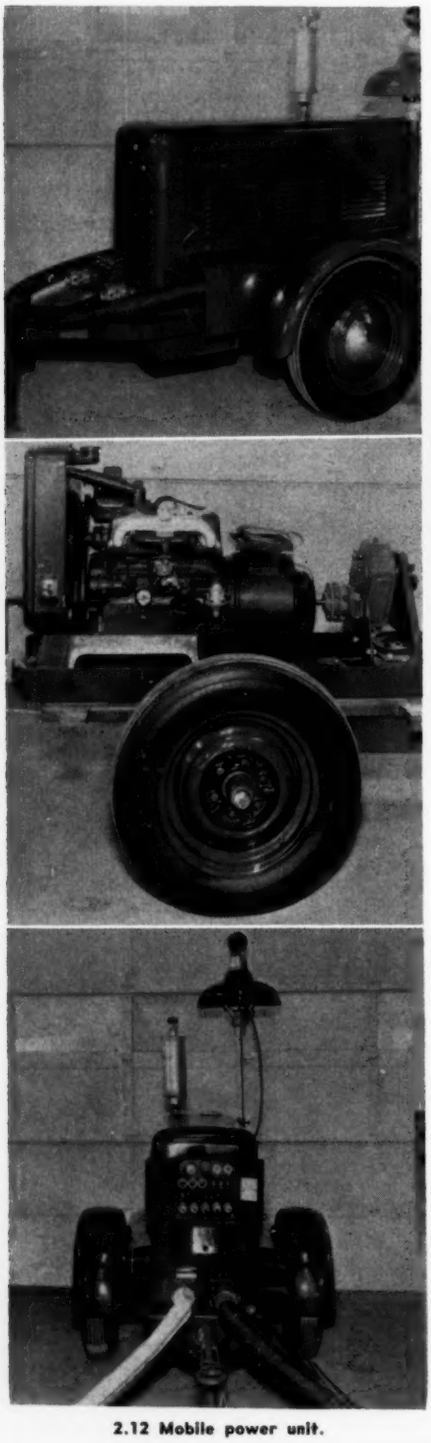
(6) The main switchboard is equipped with six-volt and 100-volt receptacles which may be used for the connection of flood lights, blowers, electrical tools, etc.

(7) A 300-watt floodlight is mounted on a telescopic mast which provides ample working light over a large area when in operation.

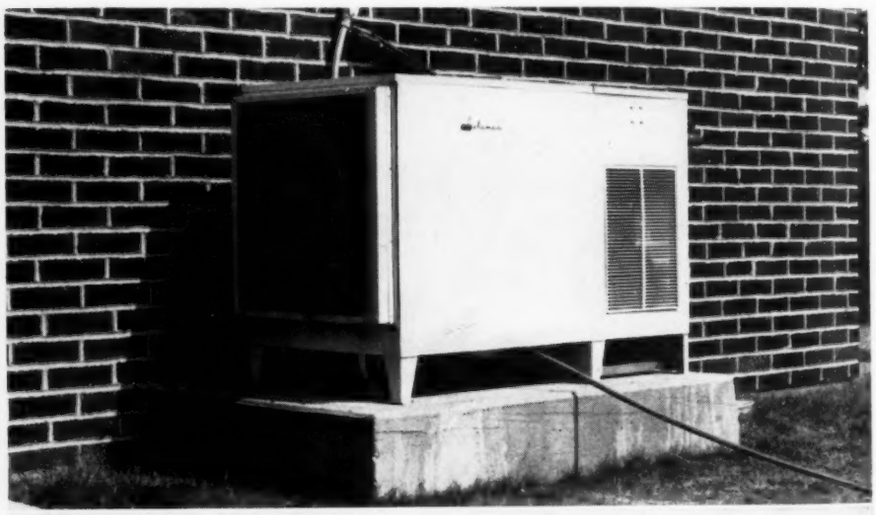
The self-priming pump provides long trouble-free service and requires very little maintenance. This type pump cannot burn out if run without water. Quick connect couplings are used for the suction and discharge hoses. These may be connected or disconnected without the need of tools.

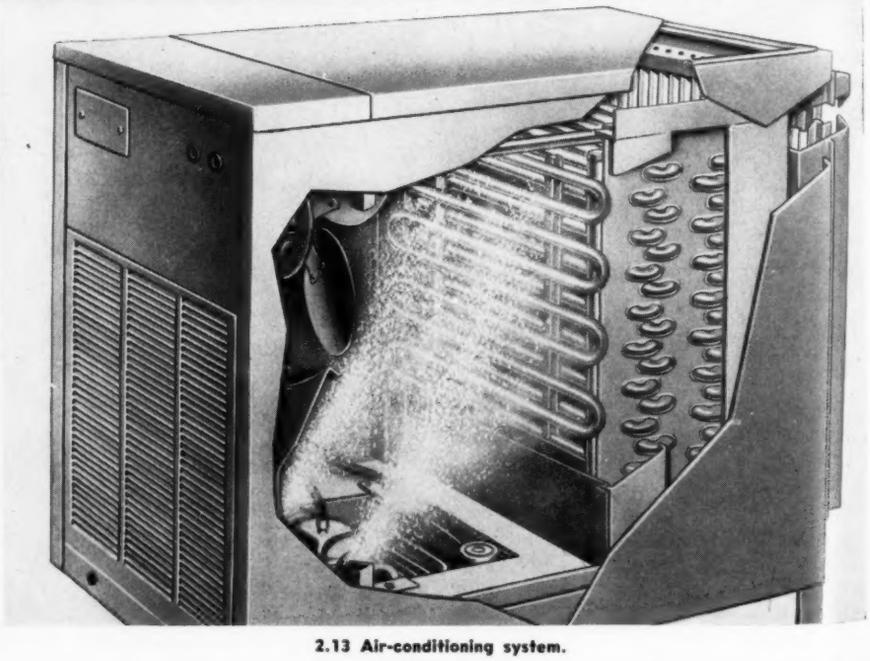
This mobile power unit has been field tested over a three-year period and has proven entirely satisfactory. It may be obtained at the present time in various sizes from 1,500 to 5,000 watts. It may also be obtained either with or without the pump and air compressor.

2.13. AIR-CONDITIONING SYSTEM. Air-conditioning is now a must in most telephone exchange buildings. Not only is it necessary for the comfort of the workers, but it provides most necessary protection of central office equipment as well. In fact, practically all new main exchange telephone buildings now being constructed are being equipped with some form of air-conditioning. In many sections of the country, difficulty is being experienced in obtaining an adequate water supply at a reasonable cost to cool the compressors because of water shortages.

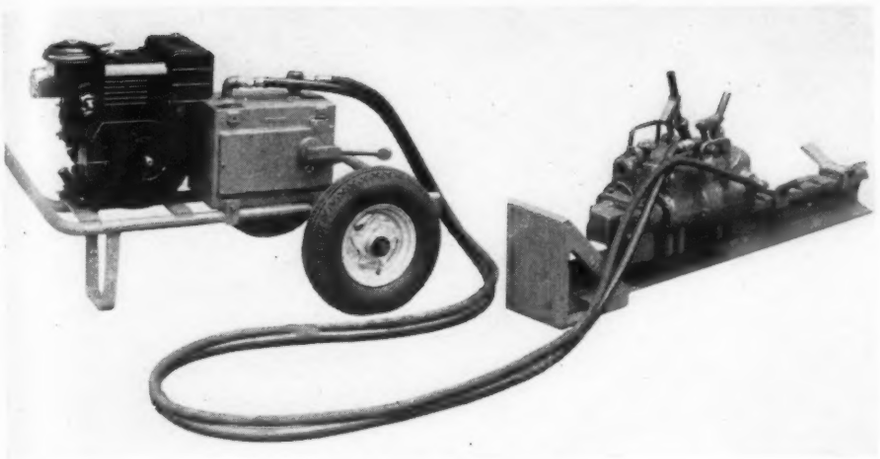


2.12 Mobile power unit.





2.13 Air-conditioning system.



2.15 Hydraulic pipe pusher.

A new type evaporative condenser, now available, cuts water consumption approximately 97 per cent and reduces electric power costs as much as 25 per cent by maintaining normal head pressure at the condenser. Housed in a compact metal cabinet which may be installed indoors or out, this new unit known as the Acqua-Fog, achieves a high degree of heat transfer through rapid evaporation of water from the coil surface.

Heat transfer is accomplished by enveloping the condenser coil in a heavy mist. This mist is created by a turbulator unit consisting of a small sealed motor and two direct-mounted wheels which revolve at high speed in the water pump. Revolution of the wheels, grooved and drilled to produce both a fine mist and a heavy wash spray, fling the water onto the coil surface. No nozzles, pumps or belts are required.

A four-blade, pressure-type fan mounted above and behind the turbulator forces air over the wet coil to complete the heat transfer. The heavy wash spray prevents formation of scale on the coil.

The amount of make-up water required for efficient operation is less than three gallons per ton of refrigeration per hour. This make-up water is controlled by a mechanically-actuated float valve. A water bleed cone removes buoyant debris and prevents excessive mineralization.

An elimination section attached to the outlet grilles removes excess water from the airstream and returns it to the pan. When installed indoors, a metal duct to remove the warm, moist air is easily attached to the outlet grille.

The entire unit is enclosed in a compact metal cabinet 40⅝ inches long, 23⅝ inches wide and 31¾ inches high. The exterior finish is light gray enamel. The manufacturer states that this unit has proven highly successful where nonavailability or disposal problems dictate the use of a water saving device and where a combination of high dry bulb temperatures and electric rates are unfavorable to the air cooled condenser. This unit is now available in two, three and five-ton sizes.

2.14. MATERIAL TRAILERS. The Chenango & Unadilla Telephone Corp. of Norwich, N. Y., operates some outlying exchanges that are located 20 to 60 miles from the main office. The large construction crews also work out of the main office, and a problem has developed in connection with the delivery of supplies and material to the jobs. This company does not maintain storerooms in these small exchanges other than supplies for telephone installation and maintenance. This material is generally stored in the small exchange. Therefore, on all large construction jobs, it is necessary to rent storage space. This space is generally obtained in the nearest village or town and, in many cases, may be located six to eight miles from the job. In this event, considerable time is lost in transplanting material to the job as this is a daily problem.

To overcome this difficulty and reduce supply costs, this company is preparing to purchase four-wheel trailers that may be pulled by a construction truck. These trailers will be equipped to carry all of the small items of material required for the complete job. Then the trailers will be parked in farm yards or some other fairly secure place at night. With this arrangement, required material will be convenient on the job at all times. This plan should prove a considerable saving in time as well as in storage space rental.

2.15. HYDRAULIC PIPE PUSHERS. There always will be a need for placing pipe underground for use as protection for telephone cables under streets, railroads, etc. In many cases, this can best and most economically be done by the use of a good pipe pusher. The hydraulic type will, in most cases, prove the most desirable for this purpose. Some of the larger units now available develop up to 75 tons piston pressure.

One model hydraulic pipe pusher considered suitable for telephone work is designed for pipe ¾ of an inch to 4 inch inclusive. It has six operating speeds with pushing pressures ranging from 6,500 to 40,000 pounds. The power unit travels on a notched steel base, supplied in 5½, 6½, 7½ and 8½-foot lengths, permitting pushes of from 4 to 7 feet between changes of the pipe clamps. Each base is equipped with one backing plate and two pipe supports. One man can easily develop enough pressure to push pipe with this equipment.

(Please turn to page 42)

2.17 Pole setter.

What PBX Service Advisers Should Look For

By G. R. BRACKETT

IT IS the PBX service adviser's responsibility to visit private switchboards to educate the customer management and attendants to become more telephone-minded, in order that they may get the most out of the equipment they are paying for.

The frequency of visits to any particular customer's PBX is governed by the quality of service given, problems that affect the service and the training needs of the attendant.

Information from service observations, instructional reviews, the service adviser's knowledge of the PBX and information received from other sources should be considered when developing a visit schedule.

Boards of like size, traffic volumes and service characteristics can be grouped and service information for the whole used as a basis for scheduling visits to the individual boards of the group. Large boards and extremely busy boards should be treated individually.

Before visiting a private switchboard, the service adviser should secure information that concerns that particular board, its attendants and customer management. She should know the names of the attendants and the person in charge, the date of the last visit, the conditions found then and the corrective action taken on unsatisfactory service items. The service adviser should be familiar with the customer's type of business and any known policies of the customer, so that she has a complete picture of matters associated with that particular PBX and can talk intelligently about them.

The length of time devoted to any single visit is governed entirely by the purpose for the visit and the prevailing conditions found at the PBX. Some visits will require only a few minutes while others will take hours, perhaps days, of the service adviser's time. On any visit, should the attendant be too busy to give the service adviser the needed attention, beyond making some casual observation pertaining to the service or equipment, the service adviser should excuse herself and return at a more opportune time and date.

In dealing with customer managements, attendants and extension users, visiting service advisers can gain ready cooperation and good-will by meriting the confidence of the three. Such trust is brought about when customers, attendants and extension users understand the service goal and appreciate that the service advisers are there for the one purpose of being helpful in keeping them informed on changing methods, giving management folks a better insight into the importance of their operating forces and training attendants. Service advisers who are successful in achieving this finale are held in respect and are sought for assistance and counsel.

Service advisers should visit all new PBX installations shortly after completion. This visit will help to establish contact with customer management. The initial visit has a controlling effect on the telephone company's relations with the customer and the following effectiveness of the service adviser on subsequent visits. The contact for these first visits should be carefully thought out and prepared if the service adviser is to make a favorable impression for herself and the company.

Notes pertaining to the attendant's work should be made after leaving the customer's premises so the attendants will not get the impression . . . the service adviser is "checking up" on them.

When adequate information is not available for scheduling the frequency of regular or planned visits, the following table can be used as a tentative guide:

(1) Visits to be made monthly.
  (a) Manual switchboards — four positions or more.
  (b) Automatic switchboards — four positions or more.
(2) Visits to be made quarterly.
  (a) Manual—two positions with 11 or more trunks.
  (b) Manual—three positions.
  (c) Automatic — two and three positions.
(3) Visits to be made semi-annually.
  (a) Manual—one and two positions with six to 10 trunks.
  (b) Automatic—one position.
(4) All PBX switchboards should be visited once each year — even the smallest.
(5) The frequency of visits to cordless boards varies, governed by the general service condition and the requested need for assistance at a particular switchboard. Cordless board operation is usually only a small part of the attendant's work. In a great many cases several people share in handling the traffic at one time or another. Even so, the lowly cordless board is important and should be visited at least once each year if for no other reason than that of good public relations.

Things for a Service Adviser to Look For. Since most of the service adviser's contacts are with employes of outside firms and with people over whom she has no authority, it is important that her instructions be on the basis of suggestion, emphasizing the values received when proper operating procedures are followed.

(1) Does attendant use proper phrases, firm or department name? Does she understand that personal calls over her switchboard can be a contributing cause of poor service. She should be encouraged to avoid slang and meaningless conversation.

(2) Does she answer and disconnect promptly? If not explain to her briefly the need for alertness in answering all signals promptly. Discuss order of attention to signals, explaining when signals of different kinds appear at the same time the order in which they should be answered — recall first, incoming trunk signal second, the extension signal third, and the disconnect signal fourth.

(3) Does attendant plug out signals? If she does explain that such a practice stops the ringing signal on an incoming trunk call and may cause a customer to abandon the call because he thinks something has gone awry with the connection.

Plug-outs can cause overtime charges on station-to-station long distance calls, especially since, with operator toll dialing, the toll operator starts timing

when her supervisory signal goes dark. As customer toll dialing becomes more common, the need for eliminating this operating irregularity will become more urgent.

Plug-outs cause additional paystation charges and tally extra message register calls, should the calling party hang up.

On calls from hotel rooms, the hotel operator does not monitor every outgoing call from a room, therefore, she will charge for an outgoing call if the trunk signal is plugged out at the called PBX, even though the calling party gets no answer.

Plug-outs increase operating work when calling party has to make more than one attempt to ring back the number he wants.

Where there is more than one position of switchboard, a plug in a jack prevents another operator, who may not be busy, from answering the signal.

(4) Does attendant thoroughly understand the operation of her switchboard?

(5) Do extension users answer quickly and properly? It should be attendant's job to explain to her people the advantages of prompt answering and greeting the calling party with department name or extension user's own name.

(6) Do all relief attendants thoroughly understand the operation of the switchboard? Are they familiar with the practices that promote good telephone service?

(7) Do attendants know to whom they should report equipment troubles? Do they understand all faults should be reported promptly? Is the relief operator informed of the reported fault so she can give information to the repairman should he call while she is on duty? Are extension troubles reported by station number rather than by name?

(8) Does attendant know to whom she reports traffic difficulties?

(9) Does attendant know who she should contact for additional facilities such as trunks, extensions, cord circuits, etc.

(10) If attendant has had equipment trouble prior to service adviser's visit, service adviser should test equipment and if still in trouble, report it to the proper person.

(11) Make sure the attendant knows how to establish night connections properly. Check to see if a more suitable arrangement of night connections is possible.

(12) Are the switchboard and extension facilities sufficient for subscriber's needs? Are any certain extensions so busy they need additional telephones for handling calls promptly? Is the present trunk group large enough to handle the incoming and outgoing traffic without delay?

(13) Does the attendant know the value of a pleasing voice? The need for a well-modulated tone and a rising inflection. If possible let attendant hear her own voice on the tape recorder so she may determine in her own mind the qualities of her voice. Is her headset adjusted properly, mouthpiece one-half inch from her lips and at the proper angle?

(14) Does attendant and her management know the service adviser may have a list of experienced operators who are available for permanent, relief and temporary work? Do they know, the telephone company gladly gives any instruction the attendant may need at no cost to the customer?

(15) Is attendant placing outgoing calls over the highest numbered trunks in the group?

(16) Are all designation cards legible? Are all cellulose windows in good condition?

(17) Is attendant familiar with information on first few pages of the exchange directory?

(18) Does attendant keep her out-of-town number directory up to date? Does she place her long distance calls by number?

(19) Does attendant stay on line after placing a long distance call? Does attendant request time and charges?

(20) Does attendant keep the buzzer turned "ON" while operating her switchboard? If she thinks the buzzer too loud, a repairman will tone it down to any degree she approves.

(21) Does attendant acknowledge an order, getting the call off to a good start? Does she realize, when a calling person asks to be connected to an extension or department, he has no way of knowing that his request is understood unless she says something in reply.

(22) Does attendant give progress reports when the completion of the call is delayed over 30 seconds? Does she know . . . progress reports are considered the language of courtesy and efficiency?

(23) Does attendant discuss her telephone problems with her boss, so his interest in her job will be aroused and thus she will avoid any unfair criticism of her work?

(24) Does the attendant and customer management understand the service adviser is at the service of those who manage and those who operate private switchboards; that she has a wealth of experience and training in such problems as concern over the quality of service; adequacy of equipment; the proficiency of the operating force; training of operating personnel; methods of procedure; questions about service and many other problems associated with the job of giving good telephone service.

Manual Switchboards

(25) If attendant passes or dials outside numbers for her extension users, has her management been told of the dangerous service undertones contained in such a practice?

(26) Does attendant recall central office operator properly? Does she ever ring on a line when recalling?

(27) Are there any bad equipment conditions—ragged cords, worn plugs, dim lamp signals, appearance of switchboard, etc.? Is dial speed okay?

(28) Does attendant, when placing outgoing calls, wait a reasonable time before changing to another central office trunk?

Automatic Switchboards

(29) Does attendant understand she cannot recall on outgoing connections? Do extension users understand this is also true of their service?

(30) Does attendant accept the busy signal as correct and does not dial "Operator" for verification of busy signal except in case of emergency?

Service Adviser's Check List

This suggested "check list" may be carried in the service adviser's note book for handy reference:

(1) Is attendant's set adjusted properly, one-half inch from lips and at the proper angle? Are headset cords worn, frayed or noisy? Is receiver cracked or broken? Is transmitter noisy or adjustment tension too weak?

(2) Is instruction card of proper type and legible?

(3) Are designation cards neat and easy to read? Are cellulose windows clear and in good condition?

(4) Are any lamp caps missing or broken?

(5) Are signal plugs in all extension and trunk jacks not in service? Are they in good condition?

(6) Are any line, trunk or supervisory lamps so dim they could cause difficulty in being sure of signal?

(7) Do any trunk jacks cut out? Test by moving plug up and down and from side to side in jack while talking and listening on the line.

(8) Do any listening keys cut out? Test by moving key from side to side while listening and talking over the pair of cords under test.

(9) Do keys operate smoothly? Are any hard to operate? Do any fly back when operated? Does ringing key

(Please turn to page 43)

THE PLANT MAN'S Notebook

by Ray Blain, Technical Editor

THROUGH the courtesy of G. W. Miller, chief engineer of the Rochester (N. Y.) Telephone Co., the writer recently enjoyed a visit to the company's Monroe exchange in Rochester.

This old manual exchange is presently overloaded, and was to be replaced by a No. 5 crossbar system during December. This new exchange —in the process of installation when I was there—will consist of 11,600 lines and 20,000 terminals. It is housed in a new building that is modern and up-to-date in every way. The walls are of ceramic tile which certainly possesses numerous advantages for use in any equipment room. While its first cost may be more than plaster walls, it will certainly prove a good investment when its reduced maintenance over a long term of years is considered. Then, too, there will never be any need to paint the walls, always a considerable task in any equipment room. The floor is covered with asphalt tile in attractive colors.

Before the equipment bays were moved in for the No. 5 crossbar, all the ceiling-mounted cable racks were installed. Then cables were placed and clamped in place on the racks and properly marked at each end. Movable frames were brought in then so that these cables could be cut back and fanned out properly. Not until then were the equipment bays moved in, set in place and the cables connected. This arrangement, which we understand was the first time that it has ever been tried, proved highly desirable. Not only did it save a considerable amount of labor, but it also prevented damage to equipment bays during installation.

This building is not air-conditioned, but mechanical ventilation and air cleaning have been provided. There is a locker room and a recreation room for the plant men. We are certain that this arrangement will pay dividends to any telephone company.

There are also automatic vending machines that dispense coffee. These machines are installed and maintained for the telephone company by a local Rochester concern. We are advised that they have proved entirely satisfactory. Coke machines also are provided and from all indications prove very popular.

The lead-calcium type storage batteries make a neat installation. Also, the entire power plant is of the latest type. Ample capacity emergency gas engine generators are also available for use in the event of a failure of the commercial power supply. A large paved parking lot is provided in the rear of the exchange for the use of maintenance personnel.

The cable vault, in our opinion, is perfect in that it is large enough and arranged so that workmen can form cables properly. A slot is provided in the ceiling for the entrance of riser cables to the main frame in the room above. The 1200-pair cables are brought in from the outside underground ducts, then make a vertical right angle turn and then a horizontal turn where they are spliced to the riser cables. This makes a neat and serviceable installation. There will never be any excuse for crossed cables in this vault.

It is always a pleasure to visit a new exchange of a progressive telephone company. This is one certain means of keeping abreast of the latest developments in the telephone industry.

• • •

The General Electric Co. has announced that it is tooling for mass production—in the millions—of low-cost, exceptionally high frequency transistors. It is further stated that plans for large quantity production of the transistors have been made possible through development of a "rate-grown" method of mass producing essential transistor elements. The rate-grown process appears to be the only technical process which shows any promise of a low cost device of this quality.

As a result of the huge quantities of uniform transistor elements, which it is now possible to produce by the rate-grown process, prices of the transistors should become competitive with vacuum tubes. It is believed that transistors at competitive prices should be available as soon as electronic equipment manufacturers have had sufficient circuitry development time to order them on a large quantity basis.

• • •

The writer recently completed a trip to the Automatic Electric Co. in Chicago; The North Electric Mfg. Co. in Galion, O., and the Stromberg-Carlson Co. in Rochester, N. Y., to check on the latest developments in automatic toll ticketing systems.

The engineers of these three companies are all making remarkable progress in the development of ticketing systems. Not only will these systems do a marvelous job in the Independent field on connecting systems, but it is only reasonable to assume that these or similar systems will be required to control traffic from all large PBX systems when the extended area dialing and the National Toll Plan is placed in operation.

Without this control on many of the large PBX systems, it will be necessary for the operators to dial manually and, in some cases time, all outgoing toll and extended area calls. Such a method would not only slow up the service, but increase its cost tremendously.

• • •

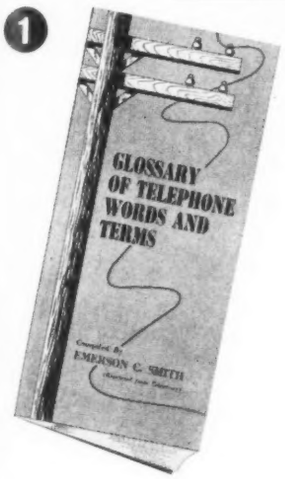
It has been estimated that if an automobile costing $1,714 were built with 1910 tools—as houses in this country are being built today — its cost would be $60,000.00.

• • •

It has been said that a man owes it to himself to be successful. Once successful, he owes it to the Bureau of Internal Revenue.

Telephony Announces... 2 NEW BOOKS

1



"GLOSSARY OF TELEPHONE WORDS AND TERMS"

By Emerson C. Smith

A 54-page (4"x8¾") reprint of five installments published in TELEPHONY. It includes definitions of 1,140 words and terms used in the telephone business. It is the only telephone glossary available. It was compiled by Emerson C. Smith, consulting engineer of Honolulu, Hawaii, who has had 26 years of experience in the technical and engineering phase of telephony. 20,000 copies have already been sold, indicating the need for such a volume. Prices are as follows:

1-101 Copies	each	$ .50
101-1000 Copies	each	.45
1001-3000 Copies	each	.40
3001-5000 Copies	each	.35
5001-10,000 Copies	each	.30
over 10,000 Copies	each	.25

"ELECTRICAL PRINCIPLES USED IN CARRIER SYSTEMS"

By Harold B. McKay

2

A 44-page (8¼"x11¼") reprint of nine popular articles which appeared in TELEPHONY. The scope of the articles include vacuum tube principles, suggestions for a new way of thinking about electrical circuit components, actual parts and functions of carrier systems and a guide to trouble shooting on carrier equipment. It is ideal for use in training schools. The author has been in the radio and telephone communications field since 1920 and has had a broad experience in carrier design and operation. 1,700 copies of this reprint already have been sold. Prices are as follows:

1- 100 Copies	each	$ .75
101- 200 Copies	each	.70
201- 300 Copies	each	.65
301- 400 Copies	each	.60
401- 500 Copies	each	.55
501-1000 Copies	each	.50
over 1000 Copies	each	.40

USE THIS HANDY BLANK TO ORDER BOTH BOOKS—PLEASE SEND REMITTANCE WITH ORDER

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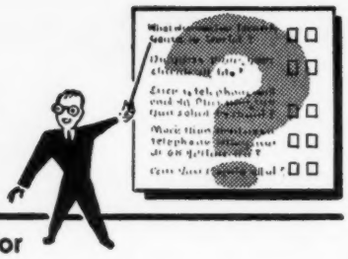
PLANT MAN'S QUIZ



by RAY BLAIN, Technical Editor

Q. What type of open wire circuit is required for the successful operation of a subscriber carrier system on a rural line?

A. We are reliably informed that this carrier will operate satisfactorily over any good open wire circuit. If you have a good grade of voice frequency transmission, you need have no fear that the carrier system will operate satisfactorily.

One subscriber carrier system is recommended for loops up to 35 db. An ample safety margin in this rating provides for excellent performance on loops with attenuation of up to 50 db, under optimum conditions.

• • •

Q. Will it be possible to use the Sub-Cycle ringing converter to provide the standard harmonic ringing frequencies on a rural line?

A. Yes. The basic Sub-Cycle principles have recently been extended to produce all of the frequencies in the harmonic series, 16⅔, 25, 33⅓, 50 and 66⅔ cycles. This new Model H-5 is true to the Sub-Cycle name and tradition in its freedom from moving parts, the positively locked ratio between the ringing frequencies and the ac line frequency, the regulated ringing voltages, and the permanent, maintenance-free operation.

The five ringing frequencies are produced from the ac line frequency in a series of frequency-changing steps. Part of the 60 cycle incoming power is converted to 40 cycles in a biased-core Sub-Cycle circuit acting as divider and doubler. The 40 cycle power is combined with 60 cycles in a modulator to produce an adequate supply of 100 cycle power.

The 100 cycles is then divided and doubled to produce the output frequencies of 16⅔, 25, 33⅓, 50 and 66⅔ cycles. The 100 cycle circuits are common to all frequencies, one set of units produces 33⅓ and 66⅔ cycles, and otherwise each frequency is obtained from an independent set of units.

• • •

Q. We would like to know whether it will be necessary to use tree guards to protect neoprene-covered drop wire when it must be strung through limbs?

A. Yours is a most difficult question to answer as neoprene drop wire is especially tough and has an estimated life of at least 20 years under average conditions. Perhaps the best answer is to cite an experience of one operating company and let you then decide whether drop wire guards should be used in your particular case.

When plastic-insulated drop wire was first introduced, one operating company selected two exchanges for a field trial. In these exchanges, the entire drop wire plant was replaced with the new type wire. In one exchange, neoprene drops were strung direct with no attempt made to avoid tree contacts or otherwise protect the wire from tree abrasion. An effort was made to string the wire with the proper sag and to avoid tight spans.

In the other test exchange, polyethylene-insulated drop wire was strung in the same manner for comparison purposes.

After an eight-year period of service, only two cases of drop wire trouble were caused in either exchange due to tree abrasion. These occurred in spans where the wire had been strung too tightly and contrary to instructions. The only other troubles were the result of damage from lightning and breakage of the wire due to falling branches or to contact with passing vehicles. The drop wire plant was found to be in good condition with no visible wear from tree abrasion.

Based on the results of the test, this company has eliminated the use of drop wire guards for the protection of wire at trees except in special areas. It has also modified its tree-trimming specifications for drop wire clearance. However, the company does require that all drop wire be installed with not less than the minimum required sags to provide proper "give" for the wire when it comes in contact with trees so as to minimize heavy rubbing.

• • •

Q. Will you please describe the approved full float method of maintaining a lead-calcium type storage battery in a telephone exchange?

A. One manufacturer describes and recommends the following method. Full float application is defined as maintaining a condition of complete charge continuously without overcharge regardless of the working load or line fluctuations.

It is that state of balance between the normal fully charged open circuit voltage of the battery and the charging source which will allow the battery to reject or accept the charge as needed. The charging source voltage is maintained slightly above the open circuit battery voltage.

The lead-calcium battery will float satisfactorily at 2.17 volts per cell. This value is not critical—the limits of 2.15 to 2.20 volts per cell can be considered normal.

If the floating method is maintained correctly, the battery should require water only about once yearly. This is also true with relation to equalizing charges.

• • •

Q. What cable ship will lay the new submarine cable between the United States and Great Britain? What is the estimated time required for the actual cable-laying operation?

A. We are informed that H.M.T.S. Monarch, the world's largest cable ship, will lay this cable. In its giant holds, the Monarch can carry nearly 6,000 tons of cable. Under favorable conditions, this ship will pay out the cable at the rate of 7 miles per hour on the high seas.

However, difficulties may be encountered in actually laying the cable. A period of 12 days with continuously good weather conditions is necessary to carry out the main operation. In the North Atlantic, such conditions are unlikely except during the period of mid-May to mid-September. One cable will be laid during the summer of 1955 and all cable-laying operations are scheduled to be completed in 1956.

This new 35-million-dollar transatlantic telephone system will be by far the longest underseas voice cable in the world and the first laid at depths found in mid-ocean.

• • •

Q. We hear a lot these days about printed circuits. What types of equipment may utilize printed circuits and what are their advantages?

A. Printed wiring has practically the same functional purpose as conventional type wiring. Its many claimed advantages include reduced space requirements, elimination of mistakes in wiring and ease of maintenance.

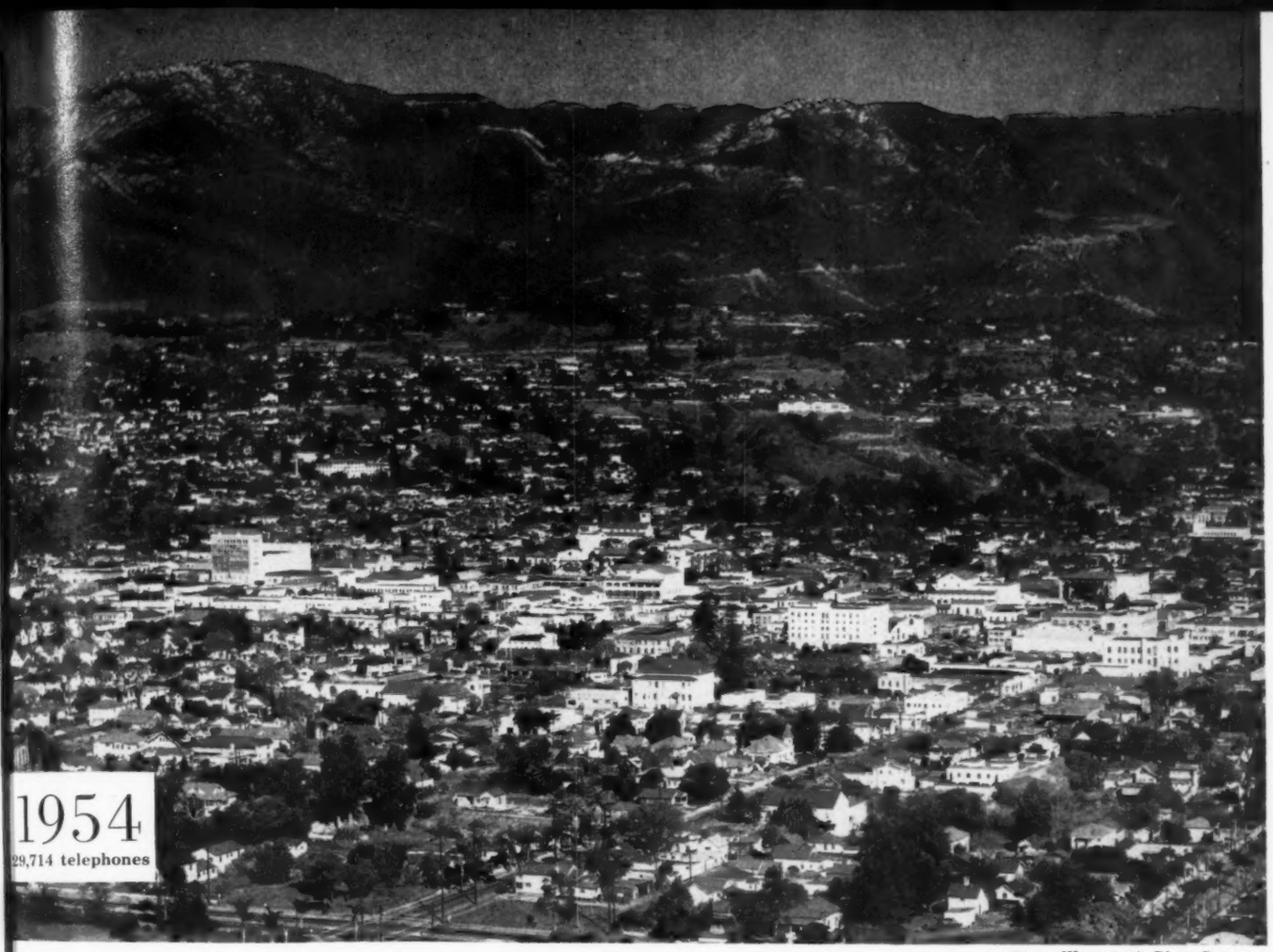


Photo: Western Air Photo Company

nd ALL'S WELL"

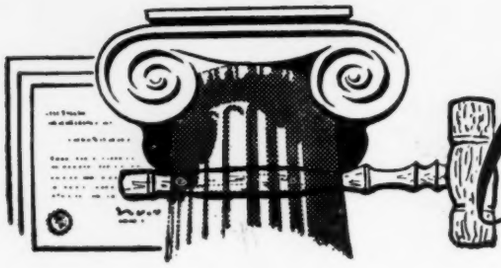
"Half a lifetime" and *of course* "all's well!" That was just what Santa Barbara telephone men *expected* back in 1928 when they cut over to Strowger Automatic. For even then, it had long been a byword for dependability.

Strowger Automatic has proved a good investment for the General Telephone Company of California at Santa Barbara. It has proved a wise investment in hundreds of similar cases. It will prove your best investment!

When you take a close look at Strowger Automatic equipment, you can *see* one of the reasons why this should be so. It's built solid! And there are reasons you *can't* see, like quality materials and craftsmanship in manufacturing. But the biggest reason is experience—Automatic's more than 60 years of research, development, engineering, and manufacturing of successful exchange equipment. Only Automatic can offer the assurance of such a record. That's why the most successful companies buy Strowger Automatic.

If you're planning to "go automatic," you'll find a consultation with our engineers most helpful. Write us today.

STROWGER
AUTOMATIC



Courts and Commissions

Independent Seeks Rate OK From Missouri Commission

The Western Light & Telephone Co., Great Bend, Kan., has filed an application with the Missouri Public Service Commission for a raise in telephone rates.

The company, which operates exchanges in about 50 Missouri towns, says that "increases in materials and wages" have "forced" the company to request the raise in rates.

No information has been released by Western Light & Telephone as to the amount of the proposed increase or when the commission will act on it.

V V

South Carolina Company Asks To Sell Part of Rural Lines

Sumter Telephone Co. has petitioned the South Carolina Public Service Commission to approve a proposed sale of part of its rural lines at its Sumter exchange and to authorize it to discontinue service to subscribers served by the lines, it was reported on Dec. 2.

Commission officials said the Farmers Telephone Cooperative is the proposed buyer of the lines. A hearing is to be held on Dec. 16.

V V

Rhode Island Paystation Rate Increase Proposed

Rhode Island Public Utility Administrator Thomas A. Kennelly was asked on Dec. 1 by the New England Telephone & Telegraph Co. for permission to increase its charge for local paystation calls from a nickel to a dime.

A spokesman for the company estimated the increase would bring in about $250,000 added revenue a year. The 10-cent rate is now in effect in all or in parts of 43 states and in the District of Columbia, he said.

The 10-cent rate will take effect in Rhode Island automatically in 30 days unless Kennelly moves to set it aside. It will apply to 3,986 semi-public telephones and 1,711 public telephones, the company said.

Abolition of the nickel call will extend the area in which coin telephone users can make direct dial calls. At present, any call on which the charge is a dime, as from a Providence exchange to Pawtucket, must go through an operator.

With a basic charge of a dime, such calls can be dialed directly. Calls on which the charge is more than 10 cents will be handled by an operator as at present.

V V

Commission Approves Transfer Of Missouri Independent

W. R. Trowbridge, president of the Ava and Mansfield Telephone Co., Ava, recently announced that the Missouri Public Service Commission has approved the transfer of ownership of the Osage Valley Telephone Co., Osceola, to the A. & M. company (TELEPHONY, Oct. 30, p. 35).

The A. & M. company has actually been operating the Osage company since Oct. 1, the date of the transfer.

Plans have been formulated which will result in the improvement of telephone service in the five exchanges in the area, it was also announced. These exchanges are at Osceola, Humansville, Lowry City, Collins and Weaubleau.

V V

Approve South Carolina Co-op Transfer of Service Area

Horry Telephone Cooperative, Inc. recently was authorized by the South Carolina Public Service Commission to transfer the Little River, Surfside and Brookgreen Garden areas of its service area to the Seacoast Telephone Co., Myrtle Beach.

The cooperative asked the commission to amend its certificate of public convenience and necessity to exclude the areas. The certificate was granted the cooperative in 1952.

V V

Wisconsin Company Applies To Purchase Five Rural Lines

Purchase of five existing rural lines to become a part of the Viroqua Telephone Cooperative was voted at the co-op's recent meeting.

The group has filed application with the Wisconsin Public Service Commission to operate as a telephone company.

Owners of the five lines in two counties—Vernon and Crawford—have already filed their approval of the sales.

A total of 232 customers are affected.

V V

Two Companies with REA Loans Granted Raises in Minnesota

Two companies with REA loan allocations—Paul Bunyan Rural Telephone Cooperative, Bemidji, and West Central Telephone Association, Wadena—were authorized on Nov. 29 by the Minnesota Railroad & Warehouse Commission to increase rates.

The new schedules of rates for the Paul Bunyan co-op's Kelliher exchange and its proposed satellite exchange at Ranger, both effective on conversion to automatic operation, will produce an increase in operating revenues from $6,257 to $43,095. Net income from these revenues will rise from a net deficit of $1,312 to net income of $7,841, a 2.06 per cent return on the new plant original cost of $380,000.

Approved automatic rates, applying to both exchanges, are as follows:

One-party business	$7.50
Two-party business	6.75
Rural multi-party business	5.75
One-party residence	5.00
Two-party residence	4.50
Four-party residence	4.00
Rural multi-party residence	4.25
Switched service	1.50
Mileage charge for service beyond the local base rate area, each ⅛ mile or fraction thereof:	
One-party	.40
Two-party, each subscriber	.25
Four-party, each subscriber	.15

The commission noted that the Paul

(Please turn to page 34)

On the page at the right is the eighth United States Independent Telephone Association advertisement in its national campaign to publicize the Independent telephone industry. The ad appeared in the Dec. 6 issue of *Time*, and in the Dec. 10 issue of *U. S. News & World Report*.

JET BOMBERS WON'T WAIT for you to aim your guns – you've got to do it with mechanical hands and electronic brains. Those 120 mm. muzzles must swing smoothly ahead of targets that are racing through space, must guide shells unerringly to points in the sky where invaders will be.

How is it done? By the M-33 fire-control system produced by Western Electric for the Army, a system based upon radars and electronic computers.

Many of the M-33's basic principles are the same as those used to guide your dial telephone call to the right number – and Western Electric makes dial telephone systems, too. That's why, with 72 years of experience as manufacturing unit of the Bell System, we have the highly specialized skills needed to produce electronic equipment, such as M-33, for national defense.

At the same time we are doing work of this kind for the Armed Forces, we are also going full speed ahead with our regular job – making telephone equipment to help keep Bell System service going and growing.

Western Electric

MANUFACTURING AND SUPPLY UNIT OF THE BELL SYSTEM

Bunyan co-op's Kelliher exchange serves 85 local and 26 rural stations, and switches 193 service stations; also that, after conversion to automatic operation, it estimates that Kelliher and Ranger exchanges will be serving 155 local and 564 rural stations, and switching 32 service stations.

West Central Telephone Association was granted immediate increases for manual service at its Sebeka, Menahga and Verndale exchanges, and a schedule of automatic rates applicable upon conversion of these exchanges. The commission found that release of funds in one REA allocation was contingent upon approval of the proposed rates for manual service; and further that the company is seeking another REA loan allocation to be used to convert its exchanges to automatic operation. The release of these latter funds was made contingent upon commission approval of the automatic rate schedule which was granted.

Operating revenues under the old rates were $28,365, under the new manual schedule will be $33,553, and after conversion of the three exchanges will be $100,073. Comparable figures for net income are a net deficit of $2,638, net income of $2,142, and $29,778. Present plant original cost is $55,000; thus the new manual rates will return 3.89 per cent. Converted to automatic, the plant original cost will be $568,000, and the return 5.24 per cent.

Following are the manual and the automatic rates for the three exchanges:

	Sebeka Manual	*Menahga and Verndale Manual*	*All Exchanges Automatic*
One-party business	$5.00	$4.50*	$7.50
Two-party business	4.25	3.75*	6.75
One-party residence	3.50	3.00*	4.75
Two-party residence	3.00	2.50*	4.25
Four-party residence	2.50	2.00*	3.75
Rural multi-party residence	3.00†	3.00†	4.25
Switched service	1.00	1.00	1.50
Switched service, minimum charge per month, per circuit	5.00	5.00	7.50
Mileage charge for service beyond the local base rate area, each ⅛ mile or fraction thereof:			
One-party	.40	.40	.40
Two-party, each subscriber	.20	.20	.20
Four-party, each subscriber	.15	.15	.15

*An additional charge of 50 cents per month for common battery service. This service is optional to the subscriber.

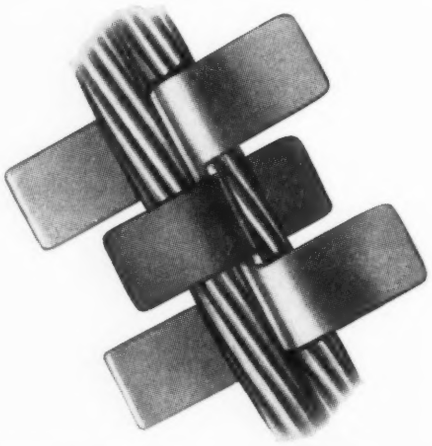
†An additional charge of 50 cents per month for rural common battery service. Rural common battery service, not to exceed 10-party, will be extended only upon demand of at least six subscribers within 8 miles from the central office and said six subscribers are located along the same existing pole line following the same general direction.

An additional charge for a handset instrument (magneto service) to rural multi-party subscribers.

The West Central company is now serving approximately 427 local, 28 rural and 542 switched stations. After conversion to automatic operation it estimates that it will be serving 603 local, 826 rural and 318 switched stations.

You Serve Guy Strand Quicker-Better *with* KEARNEY *Finger Grip* GUY CLIPS

Waste strand wastes valuable time when your crews use it to serve guy strand ends. They'll do a much faster, neater job with this KEARNEY FINGER GRIP GUY CLIP. Requires no special tool. The aluminum pre-formed tabs are easily interlocked and impossible to position incorrectly.



WRITE TODAY *for Prices and Quantity Discounts*

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-225

For Better Construction . . . For Safer Maintenance

Missouri Company Authorized To Re-file Rate Schedule

The Albany (Mo.) Telephone Co. failed on Nov. 24 to get the $4,929 annual rate increase it had requested. The Missouri Public Service Commission said the sum asked for would mean a 7.92 per cent return on its investment and would be too high.

Instead, the commission authorized the Gentry County company to file a rate schedule which would produce $4,000 more revenue a year, or a 6.44 per cent return. When filed, the higher rates still would be subject to commission approval.

The company serves 872 subscribers.

V V

North Carolina Commission Grants Authority for Changes

The Matthews & Waxhaw Telephone Co. was authorized by the North Carolina Utilities Commission on Nov. 26 to increase its rates, figure mileage charges by pole miles, change an accounting procedure and establish a new exchange at Indian Trail (TELEPHONY, Nov. 13, p. 42).

The rate increase will provide the company with additional gross revenue of $10,107, which the company contended, at a hearing on Nov. 5, is needed to provide a fair return on its investment and to offset rising costs. Business rates go to $7.00 for one-party service, $5.50 for two-party and $5.00 for four-party. Residence rates go to

Joe's door is locked for the night . . .

But the orders come in as usual!

Joe Kikopolis still remembers the chuckles in the Gazette office when he walked in to advertise for help in his dry cleaning store.

"Less than fifteen dollars a *month*, Joe, for someone to answer your phone from 6 PM until midnight? Look, Joe, you're wasting your money. Nobody will answer this ad—nobody would work for that money!"

But Joe insisted, and someone did answer the ad. It was Joe's telephone company representative who stopped the chuckles. He read the ad and rented Joe a Peatrophone—to answer the phone and take orders all night long—for *less* than fifteen dollars a month!

Joe finds "Peatrophone" hard to say, so he calls his new partner "Pete"—and when he drives over to pay the telephone bill each month, he points proudly to the new sign on his truck: "Joe Kikopolis and 'Pete'—Dry Cleaning—All Night Order Service."

Many of your subscribers in small plants and stores would like to furnish all night order service—they just don't know how economical it can be. Tell them about Peatrophone—explain its low monthly rental charge—*and help yourself to new revenue!*

Write today for complete information and literature on Peatrophone—your new source of revenue.

Note: Selective harmonic ringing subsets now available—all frequencies.

TELEPHONE ANSWERING & RECORDING CORP.
342 Madison Ave. New York 17, N. Y.

When power is interrupted—

Mobile ONAN Electric Plant Keeps Exchanges Operating

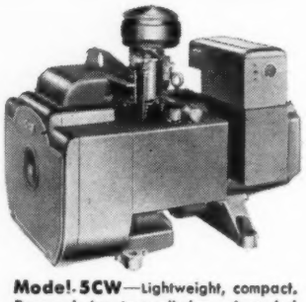
This trailer-mounted 25,000-watt Onan Electric Plant is one of a fleet of 20 owned by the Northwestern Bell Telephone Company in Minneapolis. These units are kept in a centrally-located garage and when an outlying exchange is cut off from its regular source of electric power, one of these mobile electric plants is rushed to the spot. Within a few minutes it is hooked up and all essential equipment supplied with electricity.

For mobile applications such as this, as well as in permanent standby installations, Onan units can be depended upon when emergencies strike. Onan heavy-duty, 4-cycle engines start easily, run longer without attention, require less maintenance.

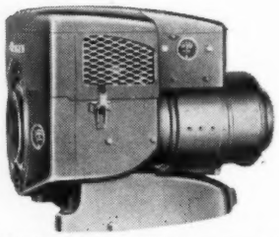
Onan Standby Plants are used by telephone, micro-wave and radio broadcasting companies from coast to coast to assure vital communications. If you have a standby power problem, let our engineers recommend the size and type electric plant you need.

ONAN STANDBY PLANTS: 1,000 to 50,000 watts A.C., gasoline-powered.

Write for Folder and Engineering Assistance



Model 5CW—Lightweight, compact. Powered by two-cylinder, air-cooled gasoline engine.



Model 305CK—3,500 watts A.C. Powered by two-cylinder, air-cooled gasoline engine.

D. W. ONAN & SONS INC.
7879 University Ave. S.E., Minneapolis 14, Minn.

Onan ELECTRIC PLANTS

STANDBY POWER for every need, 1,000 to 50,000 watts

$5.00 to one-party, $4.50 for two-party and $3.75 for four-party.

In asking that the mileage charges be changed from airline distance to pole line distance, the company said the new system would be fairer to its customers.

The accounting change approved will allow the company to capitalize its interest charges as part of its plant account during its current construction program.

The new Indian Trail exchange will be located near Charlotte.

V V

Kansas Commission to Hear Five Telephone Applications

The Kansas Corporation Commission has been reported as scheduled to hear the following cases in December and January:

On Dec. 7, application of the Rural Telephone Co., Norton, for permission to issue mortgage notes to the federal government and membership certificates to subscribers to buy the Solomon Valley Co-operative Telephone Co., Edmond, the Logan Telephone Co. and the Damar Union Mutual Telephone Co. The Rural Telephone Co., a new REA cooperative, wishes to take over these properties, rehabilitate them, and convert the Solomon Valley and Damar companies to automatic service.

On Dec. 20, the application of the Centropolis Telephone Co. and the Mound Ridge Telephone Co. for rate increases.

On Dec. 27, application of the Tipton Telephone Co. to raise rates.

On Jan. 3, application of Greenleaf Telephone Co. to raise rates.

V V

California Company Authorized To Issue Stock

The California Public Utilities Commission, in a decision handed down recently, approved the application and issued an order authorizing the Ducor Telephone Co. to take over operation of the business conducted by Virgil A. Roome, an individual, under the same company name.

In its decision, the commission also authorized the new corporation to issue 1,140 shares of common stock, of total par value of $11,400 and to enter into a conditional sales contract for the purchase of equipment.

The improved service will include the installation of a 50-line automatic switchboard, 100 dial telephones and two carrier terminals with associated equipment.

Indiana Independent Gets Commission Rate Approval

The Argos Telephone Co. recently was notified by the Indiana Public Service Commission that the company's petition for an increase in rates has been approved (TELEPHONY, Nov. 6, p. 43).

According to Mrs. Carl Morgan, owner of the Argos company, the rate increase was necessary because of increased operation expenses and increased cost of plant operations, which have placed the company in an unsound financial condition.

The new rates are as follows:

Business	
One-party	$5.50
Multi-party	4.50
Multi-party rural	4.50
Residence	
One-party	4.25
Multi-party	3.10
Multi-party rural	3.10
Mileage beyond city limits—for each ¼ mile or fraction thereof:	
One-party	.50
Two-party	.25

V V

New York Company Files for Relief in Bankruptcy

The Killawog Telephone Co. of Marathon has petitioned in Utica, N. Y., Federal Court for relief under bankruptcy proceedings.

The company, which serves approximately 750 subscribers in Cortland and Broome County, filed a petition on Nov. 20. It was signed by Theodore C. Brewer, vice president. It has not yet been approved by the court.

The company listed assets of $113,576 and liabilities of $92,288, and said it owed the federal government about $37,000 for telephone and payroll taxes, and the New York Telephone Co., $28,883 in toll revenue.

V V

Southwestern Bell Asks Rehearing in Illinois

A motion for a rehearing of the order of the Illinois Commerce Commission denying Southwestern Bell Telephone Co.'s application for a $498,500 rate increase on its East Side business was filed by the company with the commission on Nov. 16 (TELEPHONY, Nov. 6, p. 40).

Declaring that more than three-fourths of the Illinois plant has been installed since World War II at high post-war prices, the company said the commission's figure of $14,100,000 for its Illinois rate base was too low.

The motion also stated the rate of return fixed by the commission of 5.5 per cent also was too low as it was not sufficient to attract invested capital to the company.

at Delta Telephone and Telegraph Co.

It's C&D Calcium Batteries for EXTRA life

One of C&D's typical installations in use at the Delta Telephone and Telegraph Co., Courtland, Calif. The 24 PlastiCal (lead-calcium) cells, Type PCE-420, have a 420 A.H. capacity.

In the growing community of Courtland, California, the Delta Telephone and Telegraph Co. relies on the continuous, dependable service provided by C&D PlastiCal batteries. For here, in the historic Delta region, the Delta Telephone and Telegraph Co. has found that C&D has the answer to telephone battery needs.

When you order your next telephone battery, specify C&D. For with C&D, you get:

1. One-piece, permanently-sealed plastic case. Entire unit is shock-resistant, lighter, and more compact than glass or rubber.
2. Exclusive suspended and supported plate construction eliminates leaks due to internal stresses.
3. Easier maintenance, because patented Post Seal eliminates acid creepage.
4. Lower shipping costs. Light plastic case reduces total in-place cost.

You can order C&D batteries from your equipment supplier.

Write for bulletins!

For details and specifications on C&D telephone batteries, write for Bulletins T-527 and T-528.

C&D BATTERIES, INC.
of Conshohocken, Pa.
Manufacturers of Industrial Batteries since 1908

Sales and Service Offices in Principal Cities from Coast to Coast

IN THE NATION'S CAPITAL

Concluded from page 18

means higher wages and more jobs, perhaps due to government "made work." Politically, that is supposed to make the mass of voters happy—as long as the economic merry-go-round does not break down. But it also means unbalanced budgets and higher taxes, contributing to a vicious circle of still more inflation. What would it profit the telephone industry, or its investors, or its employes, to double or triple investment, wages, rates, etc., over a 10-year period, *if the whole thing were just a concealed mark-up, like playing with poker chips for dollars?*

Funny-money wages are a cruel enough hoax on the employe when he finds his "take home pay" (in terms of value received) is no greater and maybe even less than before the arbitrary mark-up started. But the investor, who is in a position to pull out or freeze up his money, is even less likely to be fascinated by the "numbers game" the planned economy crew would like to adopt, as a fiscal policy of the federal government.

Picking Up the Slack

Do the planners mean to adopt such a thing? Well, here is an excerpt from a letter to *The Washington Post and Times Herald* by Keyserling. It was published on Dec. 2. In the rest of his letter, Mr. Keyserling had pointed out that planning for an increase in the national product value should also be accompanied by planning for an increase in the number of jobs, and for the proper increase of production activity that would be necessary to make such jobs. Then, Mr. Keyserling lets the cat out of the bag:

"Because the level of defense spending is declining, at least relative to the total productive power of our economy at full utilization of its resources, the task of translating our productive potential into actual and fairly continuous enjoyment of full prosperity is real and serious. It involves enormous problems of improving the lot of millions of low-income families, encouraging the propensity as well as the ability to consume, maintaining a balance between investment and consumption, and appropriately shaping our great national economic policies relating to taxation, monetary and credit matters, social security, and housing, agricultural adjustment, etc.

"The government, in my opinion, should not state the level of production consistent with a full economy in 1964, unless it is prepared first to state the level of production and employment, of consumption and private investment and public outlays, consistent with a full economy in 1954 and 1955. This has not yet been done, although it is an express requirement of the Employment Act of 1946."

Translated into plain terms of domestic policy, this simply means that the federal government must assume the responsibility for keeping, on schedule, the progress of the national economy according to a timetable which Mr. Keyserling or others would decide upon in advance. Where private industry could not "pick up the slack" of furnishing the estimated number of jobs needed, the federal government would have to do so. In the absence of war industry or defense industry activity (which is now tapering out of the picture) this would mean more public works.

The federal taxpayers would be called upon to foot the bill for highways, hospitals, power plants — anything to make the requisite number of jobs and to support these jobs according to the manner of wage scales which the government statisticians have become accustomed. This, in turn, would mean more pressure on the tax-paying (private enterprise) economy to support an increasing burden of tax-eating (government enterprise) economy. Skyrocketing deficits would send the dollar purchasing value down more and more. Public utilities — including the telephone industry—would be on another inflationary merry-go-round. Additional rate increases would be required, with monotonous regularity. Regulatory commissions would allow one-third or one-half or none at all. And if earnings eventually failed to yield enough return to attract the investor, the utilities would then reach the next step of the impasse.

Here's the next step. Unable to raise the capital for necessary plant expansion or improvement, there would come a contraction of service standards. At this point, we would hear the usual suggestion from the left: "If private industry won't or can't do the job, the government will have to do it." Follow along this line. The increasing burden of tax-eating economy would eventually overbalance the underlying support of the tax-paying economy. To avoid an outright crash, the planners would have to take over management, as well as the planning, to keep the wheels turning. It has all happened so often in Europe that it is a wonder we do not get wise enough to see this brand of creeping socialism for what it is. It is a fair question to ask—what are they *really* planning for?

V V

Illinois Company Asks Raise

The hearing date for a proposed advance in rates for the Port Byron Telephone Co. was set for Dec. 9 by the Illinois Commerce Commission.

Construction and S

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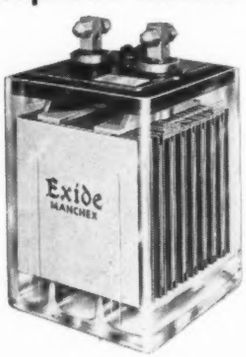
STROMBERG-CARLSO ND

LEADIN IAN

Exide-Manchex
telephone batteries



assure positive operation

For Central Office and Private Branch Exchange Equipment

This is proven daily in exchanges of every size . . . for over 60 years Exide Batteries have been serving the Telephone Industry . . . the Manchester positive plate with its exclusive button type construction provides exceptionally long life . . . latest developments on molded glass jars permit compact space saving installation . . . heavy terminal posts with copper inserts provide extra conductivity for sustained voltage at high discharge rates . . . microporous rubber along with slotted plastic separators are impervious to chemical and electrical reactions . . . plastic spacers assure plate alignment . . . for assured dependability, long life and low-cost maintenance use Exide Manchex.

The Electric Storage Battery Co.
Philadelphia, Pa.

1888 . . . Dependable Batteries . . . for 66 Years . . . 195

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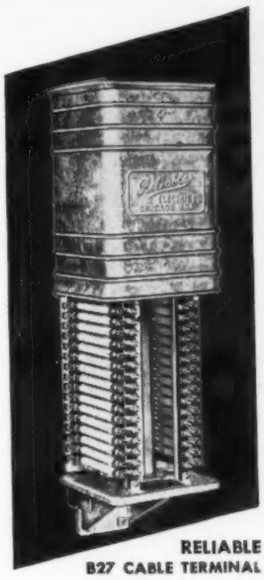
a product of actual field study



RELIABLE
B27 CABLE TERMINAL

The Reliable B27 Protected Cable Terminal has resulted from basically sound engineering, supported by actual field experience. It places all connections within convenient reach of the lineman without necessity of removing fuses or reaching around the terminal—also a decided advantage in inspecting.

Detachable mounting bracket permits one-man installation. Ground connection is made directly to ground strip, reducing possibility of high resistance ground. Reliable Self-cleaning Sawtooth Discharge Blocks are standard—insuring dissipation of static discharges without danger of unnecessarily grounding the line.

telephone cable

pre-tested to operating company requirements

by KENNECOTT

KENNECOTT WIRE AND CABLE COMPANY
PHILLIPSDALE, R.I.

The construction or maintenance engineer judges telephone cable on three points:

1. Efficiency of transmission
2. Uniformity and quality
3. Long life

Kennecott knows this and, before a foot of cable leaves its mill, subjects it to five critical tests:

1. Dielectric Strength
2. Insulation Resistance
3. Conductor Resistance
4. Capacitance
5. Fixed Dimensions

These are everyday specifications. In addition, Kennecott's staff of electrical engineers works constantly to increase the efficiency of its products.

The illustration above shows unit with cover removed.

Mfd. by Cook Electric Co.

the new

cook party line junction

(PROTECTED)

Here's an ideal unit for terminating and protecting the cable pair drop, the cable pair, and distributing four party line drops.

Circuit consists of ground stud, a pair of true gap lightning arresters, cable drop studs and heavy busses each equipped with four screw type terminals. Easy to install. All drop wires are doubly protected when used in conjunction with Cook substation protectors.

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High Fidelity Radios and Radio-Phonographs
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Sound and Public Address Systems
"Panoramic Vision" Television Receivers

AND MANY OTHER ELECTRONIC PRODUCTS FOR OUR ARMED FORCES

Small Company Attendance Up 75% At Oklahoma Convention

By H. D. Straughn*

THE Oklahoma Telephone Association's 1954 convention was held at the Huckins Hotel in Oklahoma City on Nov. 4 and 5, and recorded a 75 per cent increase in the number of registrations from small Independent telephone companies as compared with the 1953 meeting.

The excellent exhibits of the manufacturers and suppliers were worthy of special note—17 rooms of interesting exhibits that were probably the highest point of interest at the convention.

President R. E. Harris presided over the meeting and, following an address of welcome by Shel Stirling, managing director of the Oklahoma City Chamber of Commerce, he gave a report of the association's activities in 1954.

George L. Verity, an Oklahoma City attorney and rate specialist, brought a forceful and educational talk on "Incorporating, Financing and Rate Increases as Related to Dial Conversions." This was greatly appreciated by the considerable number present who are either in the midst of a modernization program or are making plans to get started.

Through the courtesy of the North Electric Mfg. Co., R. E. Pickett, sales engineer in the company's electronics division, presented an interesting discussion of "Subscriber Carrier Systems." He described the two different types of these systems now on the market, explained their function and told about their practical applications.

Everett C. Weitzell, chief, telephone operations and loans division of the Rural Electrification Administration, explained how REA could be of help in the financing of improvement programs in a talk entitled "REA Financing for Independent Telephone Companies." Mr. Weitzell covered this subject very thoroughly and emphasized the desire of the REA to work hand in hand with the industry in solving the problem of better telephone service in rural areas. He said:

"We have only one desire, and that is to be of service to the telephone industry in accordance with the objectives that Congress had in mind when it provided the REA telephone loan program.

"I believe that the objectives and aims of the Independent telephone industry and those of REA are identical and that we are working toward a mutual objective. There should be no feeling that REA is trying to crowd anybody out, either from an operating or a financing point of view. There is certainly room for every assistance that will be intelligently offered and applied.

"Where the Independent company can obtain adequate and suitable financing from private interests, this source of capital should be encouraged and fully utilized. Where REA financing seems to be the only available and suitable source of required funds we stand ready to give every reasonable consideration and assistance. In every respect we are ready and willing to share the challenge and the difficult task of developing a strong and more serviceable rural telephone industry. Your constructive criticism, counsel and advice are always welcome.

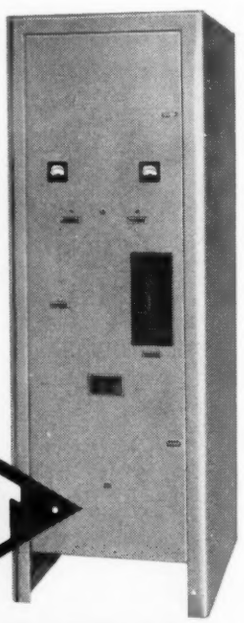
"Working together toward our mutual objective, we should be able to develop the kind of Independent telephone service that all of us will be proud of during the years to come."

George Hamburger, manager, communication sales, Copperweld Steel Co., showed a film that portrayed improved methods of obtaining adequate grounds for telephone systems. This also included oral explanations and discussions to further clarify the methods employed.

The afternoon program of the first day closed with a traffic talk presented by H. A. Miller, general manager — telephone department, Western Light & Telephone Co. He touched on traffic problems in general and urged all companies represented to check on the efficiency of their traffic departments.

The second day's program opened

*Mr. Straughn is secretary of the Oklahoma Telephone Association.



Cut overhead costs—

Increase Battery Life with INET

"TELE-CHARGERS"

FINEST ***AUTOMATIC REGULATED*** *TELEPHONE BATTERY CHARGERS...*

PROVEN "IN SERVICE"...

INET Tele-Chargers are engineered to surpass critical requirements of the Telephone Industry.

Featuring Permanent Magnet Reference... finest magnetic amplifier controls and long-life selenium rectifiers provide the ultimate in dependable *automatic regulation* and maintenance-free performance.

Fully protected and conservatively rated—*cannot* be overloaded—exceptionally close voltage regulation—better than ± ¼% regardless of extreme AC line, wide load and frequency changes and variations in ambient temperature. Other outstanding characteristics are: Lightning-Fast Response—better than 0.1 second and Low Ripple—less than 0.5% RMS.

Compact, completely self-contained with all controls, circuit breakers and separate float and equalizer controls housed in modern heavy gauge steel cabinets. Units available with output ratings of 49 to 65 VDC at 0-50 to 0-1600 Amps.; 23 to 27 cells.

Write for complete engineering specifications.

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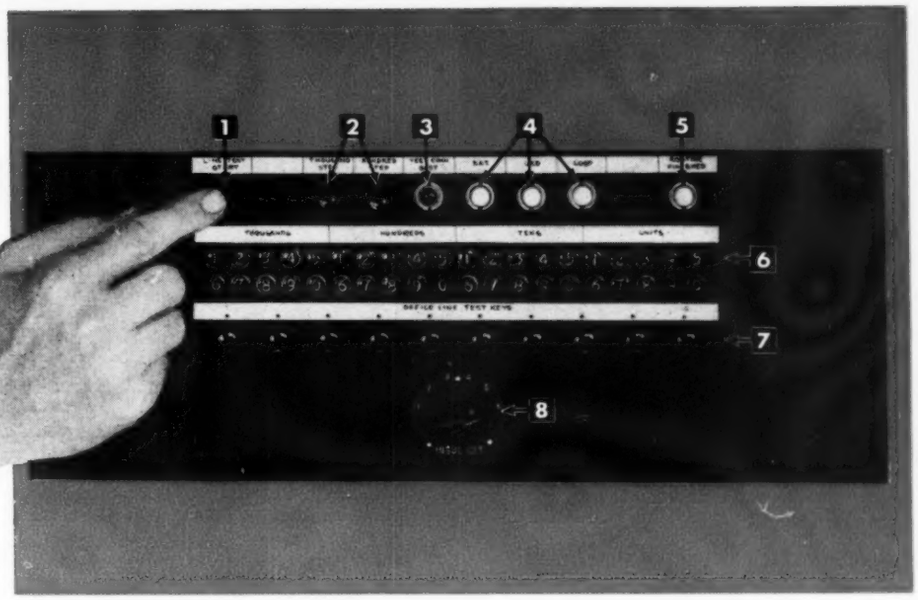
DIVISION OF LEACH CORPORATION

4441 Santa Fe Avenue, Los Angeles 58, Calif.

Phone LOgan 8-4771

check 5000 lines in 3 hours

with new "pushbutton" routiner!



LOOK HOW EASY IT IS! to check entire office, operate office test line key (7)★, set switch (8) to desired fault resistance, and press start button (1). Checking proceeds automatically. Terminal lights (6) indicate faulty line, while fault lights (4) show type of trouble. Lamp (5) indicates end of test.

★To check *part* of office, set stepping keys (2) to desired switch group, operate switch (8) and press start button (1). Terminal lights (6) indicate group under test.

Like to check your subscriber lines in hours instead of days—and do a better job besides?

Tests prove the Automatic Line Insulation Routiner can check an entire 5,000-terminal Strowger Automatic office in about 3 hours—compared to the 40-75 hours required for manual checking. The Routiner also makes possible frequent checking, and checking during short periods of high humidity (such as early morning) when faults are easier to locate and seldom overlooked. To start a line-check, you merely press a button on the Routiner. It then connects to each line in turn—detects and signals troubles due to insulation failure (foreign potential, loop-to-loop leaks, and loop-to-ground leaks).

The Routiner mounts in a test panel or turret, while associated relay and connecting units mount on racks in the switchroom. Get full facts on the equipment that makes line-checking faster, easier, surer.

Write today for Circular T1811.

...then locate the faults quickly, accurately

with a West Test Set

Take it out for just one day—you'll clear up shorts, opens, crosses, high-resistance joints and other troubles in *miles* of line! Clip the test leads and finder coil on the line wire and crank the generator to find direction of trouble. Distance to trouble is shown by a test lamp. (No need to open busy circuits!) Thousands of telephone men use the West Test Set both for testing and as a portable telephone. Write today for handy folder T1606A.

AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems

Makers of Telephone, Signaling and Communication Apparatus • Electrical Engineers, Designers and Consultants

Distributors in U. S. and Possessions: AUTOMATIC ELECTRIC SALES CORPORATION
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1033 West Van Buren Street, Chicago 7, U. S. A.

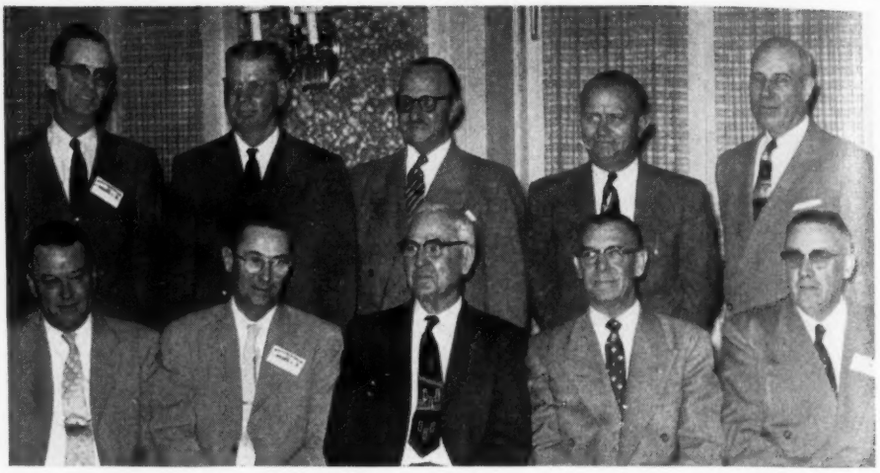
with an interesting and entertaining demonstration of "Midgets of the Telephone Science and Service" by Alvin C. Turner of the Southwestern Bell Telephone Co. This was followed by a tour of the 4-A operator toll dialing equipment now in operation at Southwestern Bell's building in Oklahoma City.

An accounting clinic by A. C. Buchanan attracted a number of representatives of small companies who obtained valuable information and advice on their accounting practices. Several will follow this up by engaging expert assistance in order to obtain a proper set of books.

The convention entertainment was along the lines of previous years. The manufacturers and suppliers sponsored a "hospitality hour" immediately preceding the banquet.

The banquet brought out a capacity crowd which thoroughly enjoyed the musical program and the after-dinner speaker, Guy Brown, field director, Oklahoma University Alumni Association. His talk was entitled "Sense and Nonsense."

Mr. Verity held sway as master of ceremonies for the evening program.



New officers and directors of the Oklahoma Telephone Association are, seated (left to right): FORREST HAND of Beggs; D. R. MAJORS of Carmen, first vice president; J. W. HOLT of Stilwell; R. E. HARRIS of Purcell, and F. E. MESSECAR of Broken Arrow, newly elected president. Standing are: HUGH D. STRAUGHN of Oklahoma City, secretary; A. L. McFADDEN of Ringwood, second vice president; W. E. GOSDIN of Oklahoma City; F. F. WRIGHT of Kingfisher, and S. C. RICH of Oklahoma City, treasurer. Directors T. E. Sheard and C. A. Blakeney were absent when photo was taken.

The three directors whose terms expired were re-elected for three-year terms, viz.: R. E. Harris of Purcell; D. R. Majors of Carmen and T. E. Sheard of Salina. The Oklahoma association board of directors also includes: C. A. Blakeney of Waynoka; J. W. Holt of Stilwell; F. F. Wright of Kingfisher; W. E. Gosdin of Oklahoma City; Forrest Hand of Beggs; A. L. McFadden of Ringwood, and F. E. Messecar of Broken Arrow.

The directors elected the following officers for the ensuing year: President, Mr. Messecar; first vice president, Mr. Majors; second vice president, Mr. McFadden; secretary, Hugh D. Straughn of Oklahoma City, and treasurer, S. C. Rich, also of Oklahoma City.

GENERAL MACHINE PRODUCTS COMPANY, INC.
7th & Wood Sts.
Philadelphia 6, Pa.

Aerial Tents
Cable Benders
Cable Blocks
Cable Lashers
Coaxial Cable Tools
Lashing Wire Clamps and Grips
Portable & Power Reels

Pressure Testing Kit

R S Power Reel

C R Power Reel

D Cable Bender

Distributed by Graybar

B, C, D & E Cable Lashers

Special Purpose Tools To Specifications
Literature on Request

Over 250 various items of Line Construction Tools, Maintenance & Pressure-Testing Equipment in stock for immediate Shipment

SPECIALIZED COMMUNICATIONS EQUIPMENT SINCE 1918

GMPCO

NEW DEVICES

Continued from page 21

Power pumps are also available to operate these pipe pushers. One type is double-piston, single valve, high pressure pump that cuts the cost of big jobs. This unit is powered by a 4½ horsepower gasoline engine. A rubber-wheeled undercarriage provides a convenient and quick method of transporting the pump on the job.

2.16. DIAL SPEED TESTER. A dial speed tester designed for checking the speed of dials either by a repairman in the field or from the shop has recently been placed on the market. The complete unit mounts on a standard 19-inch rack in the central office. A vertical space of 9 inches is required. The tester requires connections to the "48-volt" exchange battery, ground, 120 IPM interrupter ground, and dial tone.

This device can be accessed from a selector level and/or from a local testboard. If the unit is reached via a selector level, a telephone station repairman may dial the number assigned for the "dial speed tester" and a second dial tone is heard to indicate that the dial speed tester has been seized and is ready for the test to be made. This second dial tone is twice as loud as regular dial tone.

The repairman then dials the digit

"0," after which the dial speed test unit returns spurts of dial tone to indicate the speed of the dial.

(a) One spurt of tone indicates a slow dial, one slower than nine impulses per second.

(b) Two spurts of tone indicate a normal dial, nine to 11 impulses per second.

(c) Three spurts of tone indicate a fast dial, faster than 11 impulses per second.

(d) These spurts of tone are twice as loud as regular dial tone, so that they may be heard well, even over long rural lines.

If exactly 10 impulses are not received by the dial speed test unit, the digit is absorbed and steady dial tone is returned immediately to indicate that a wrong digit was received and that "0" should be dialed again. After the spurts of tone have been delivered, this device automatically re-sets itself and after a short interval steady dial tone is returned to the repairman. He may adjust and retest the dial without having to re-dial the level assigned to the dial speed tester.

When more than one exchange is in an extended area network, this dial speed tester can be installed in the larger exchange, and accessed from the selector levels of both local and the extended area trunks.

2.17. POLE SETTER. A recently developed pole setting machine operates on an entirely different principle and is no doubt due to attract considerable attention in the telephone field. The derrick resembles a giant hydraulic arm and hand, and has every motion that you have in your own arm and hand for gripping a pole. This includes the turning wrist and the angular wrist motion, and also the shoulder motion. The arm also rotates entirely around the truck.

This machine incorporates a power tamp which drops down into the hole beside the pole. As the hole is filled with dirt, the tamp climbs out, tamping the backfill to about 120 to 130 per cent compaction. This is much better than has ever been possible even with the best type of hand tamping.

V V

You find yourself refreshed by the presence of cheerful people. Why not make earnest effort to confer that pleasure on others?—L. M. CHILD.

V V

Let us be of good cheer, remembering that the misfortunes hardest to bear are those which never happen.—LOWELL.

PBX SERVICE ADVISORS

Continued from page 23

"stick" after being operated? Are any key handles loose or missing? Are any key tops cracked or broken?

(10) Is keyshelf or face, top or sides of board unsightly enough to need refinishing?

(11) Are any cords worn, frayed, tangled or too short?

(12) Are plugs corroded or dirty? Are they worn to the point of cutting out? Are they bent at the tip? Are plug seats so worn the plug sticks when picked up or drops too low when in plug seat?

(13) Does hand generator work easily and perform properly? Test by ringing on a nearby telephone. Is handle missing?

(14) Are alarm cut-off switches kept at the "ON" position while board is in operation?

(15) Does attendant have flowers or any receptacle containing liquids anywhere on switchboard? Does she drink coffee, cokes or other beverages while at the board?

(16) Does attendant have supply of trouble caps, key sleeves and cord clips? Does she know how to use these operating accessories?

(17) Does attendant have the right dialing technique? Does she dial in a jerky fashion? Does she "ride" the dial? Does she dial too fast or too slow?

These Bonds have not been and are not being offered to the public.
This advertisement appears as a matter of record only.

NEW ISSUE

November 30, 1954

$7,500,000

Rochester Telephone Corporation

First Mortgage 3¼% Bonds, Series C
Due November 1, 1989

Direct placement of these Bonds was negotiated by the undersigned.

The First Boston Corporation

NEW YORK PITTSBURGH CHICAGO
PHILADELPHIA CLEVELAND SAN FRANCISCO

Ericsson

TELEPHONE EQUIPMENT

is acclaimed the world over for highest quality and performance.

Telefonaktiebolaget L. M. Ericsson of Stockholm, Sweden, and associated companies are manufacturers of all kinds of telephone and signal equipment of every size and for every purpose.

Represented in the U. S. by

The Ericsson Corp.

100 Park Avenue New York 17, N. Y.

(18) Is the switchboard cabinet clean and free of cards or bulletins pasted to it?

(19) Does attendant have any comment on service as a whole, toll, dial, information, etc.? Are trunk, extension or equipment faults taken care of to attendant's complete satisfaction?

(20) Has attendant ever visited the central office and met the operating personnel she deals with daily?

It is well for the service adviser to discuss the switchboards she supervises with the plant installation and maintenance foreman and with the commercial department so all departments will be familiar with what she is trying to accomplish in the way of service results. Together the three departments can do a great deal through a unity of purpose. It will avoid duplication of work which can become costly and annoying to the subscriber. An occasional meeting between these people can clear the way for a healthy PBX situation that will be beneficial to the telephone company and customer alike.

V V

South Dakota Commission OK's Automatic Rates for Co-op

South Dakota Public Utilities Commission on Nov. 19 approved applications of the Valley Telephone Cooperative Association, Herreid, for a certificate of public convenience and necessity and for a schedule of automatic rates effective upon conversion.

Automatic rates authorized are as follows:

One-party business	$7.25
Two-party business	6.50
Multi-party business	6.50
One-party residence	4.75
Two-party residence	4.25
Four-party residence	3.75
Multi-party residence	4.50
Mileage charge per ¼ mile:	
One-party	.70
Two-party	.40
Four-party	.25

The commission noted that the Valley co-op had acquired the operating rights of the Missouri Valley Telephone Co. and that it intended to serve parts of Campbell and Walworth counties.

V V

New York Commission OK's Increase for Two Companies

The New York Public Service Commission on Nov. 30 accepted the following tariff amendments:

The request of the West Valley Telephone Co. to increase rates by an estimated $3,488 annually, effective Dec. 1. The company serves about 325 stations in and near West Valley, Ashford Hollow, Riceville and East Ashford, all in Cattaraugus County. Toll free service to the New York Telephone Co. exchange at Springville was established several years ago without any increase in rates.

The company was recently acquired by a new owner who now plans to convert it to automatic operation as soon as practicable. The higher rates are needed now, it was explained, to offset increased wages to employes.

A comparison of present and new rates is: one-party residence, increased from $2.50 to $3.50, one-party residence, rural, from $2.00 to $2.75. New two-party residence and five-party residence rates are $3.25 and $2.75 respectively. One-party business service is increased from $3.00 to $6.25; one-party business, rural, from $2.50 to $4.50. New rates for two-party and five-party business service are $5.50 and $4.50 respectively.

On Nov. 30, the commission accepted a tariff amendment filed by Caywood, Lodi & Valois Telephone Co., designed to increase rates by an estimated $1,743 annually, effective Dec. 1. The company serves about 250 telephone stations in and near Caywood, Lodi and Valois, Seneca County.

In filing its new tariff, the company said additional revenues were needed to offset increased operating expenses and to enable it to continue adequate service. A comparison of present and new rates is: Residence service, one-party increased from $3.25 to $3.75; two-party, from $3.00 to $3.50; four-party, from $2.75 to $3.00; multi-party rural, from $2.50 to $3.00. One-party business service increased from $4.50 to $5.75; two-party, from $4.00 to $4.50; four-party, from $3.50 to $4.00; multi-party rural, from $2.50 to $4.00.

V V

Approve $1,250,000 Bond Issue For Missouri Independent

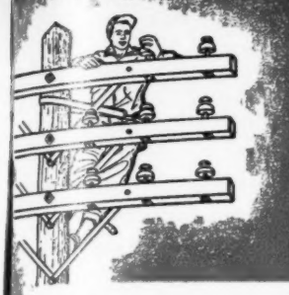
The Missouri Public Service Commission on Dec. 2 allowed Missouri Telephone Co., Columbia, to issue 1¼ million dollars in the new first mortgage bonds, bearing 3½ per cent interest and maturing in 1979 (TELEPHONY, Nov. 27, p. 33).

Under the authority granted, the company may use $729,000 of the proceeds to pay off presently outstanding mortgage bonds and the remainder to be applied toward construction and expansion costs.

V V

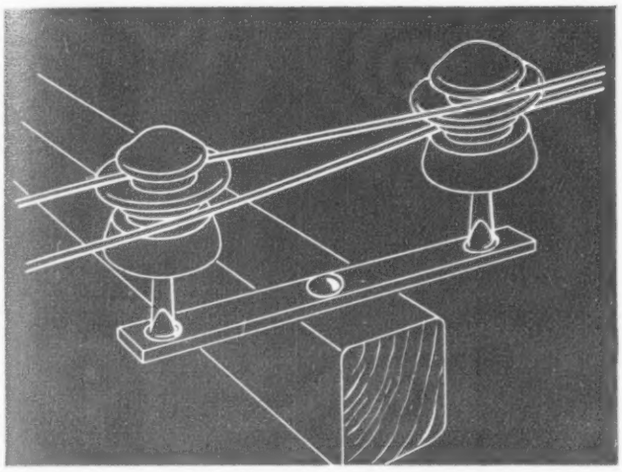
Wis. Company Seeks Increase

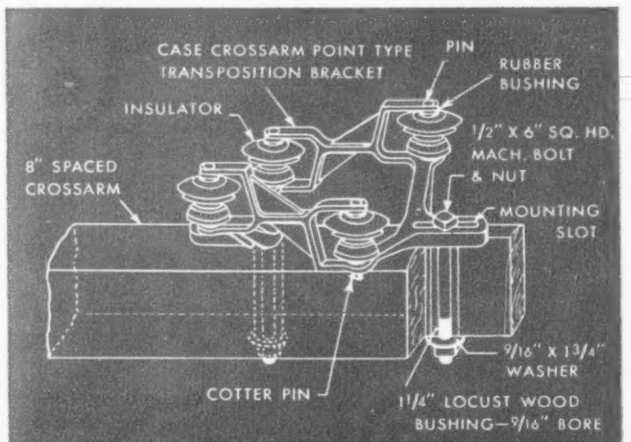
On Dec. 2 the Wisconsin Public Service Commission was to have heard the application of the Wittenberg Telephone Co. for authority to increase rates.



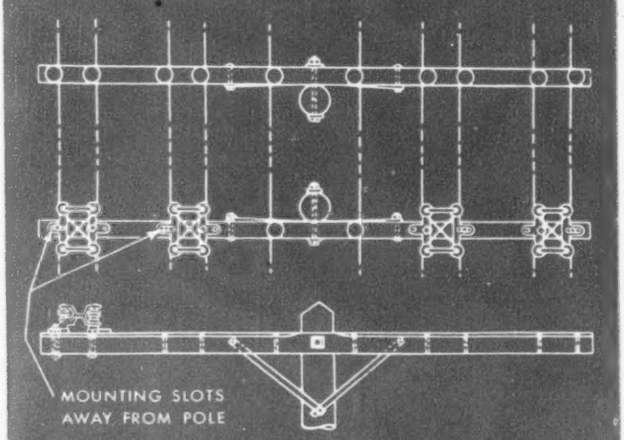
LINE CONSTRUCTION BLUEPRINTS

ITEMS SOME COMPANIES ARE USING TO MAKE LINE CONSTRUCTION WORK EASIER



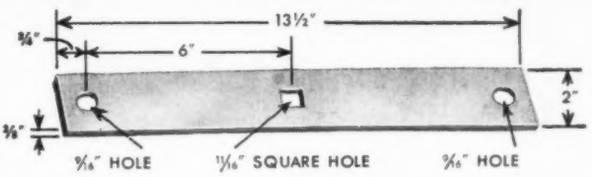


CROSSARM POINT TYPE
INSTALLATION METHOD



TYPICAL INSTALLATION
STRAIGHT LINE CONSTRUCTION

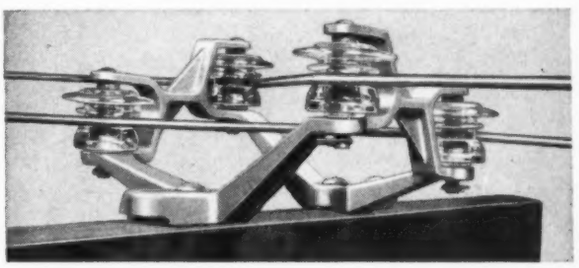
L-M TYPE "B" TANDEM TRANSPOSITION BRACKET



Used with transposition insulators for telephone line transpositions. Recommended for straight sections or at corners where pull is less than 15 feet. Heavy ⅜" x 2" steel, hot dip galvanized. REA-approved.

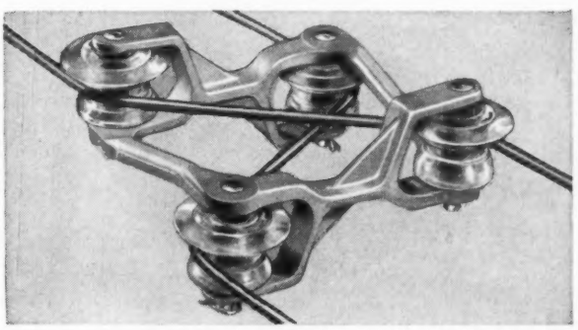
L-M CASE Roller Type TRANSPOSITION BRACKETS

Crossarm Point Type



Case Brackets equalize tension, balance lines, eliminate tie wires. Insulators *roll* easily as wire is tensioned—cutting installation time. Special rubber bushings set in insulators maintain continuity of service if insulators break. Available in crossarm and span point types, both of aluminum alloy. Weight—less than 4 pounds.

Span Point Type



Do you have a line construction problem?

These are just a few of thousands of L-M line construction specialties. If you have a line construction problem, let us know. We may have standard or special items in stock that will solve it. Ask the North Electric or Kellogg representative or the L-M Field Engineer. Line Material Company, Milwaukee 1, Wis. (a McGraw Electric Company Division).

LINE MATERIAL *Line Construction Materials*

119-R

which type jacket do you prefer ?

NYLON ?
NEOPRENE ?
MERCERIZED COTTON ?

COMMERCIAL makes *all three* . . . REGULAR type Cords with either Mercerized Cotton or Nylon Jackets . . . RETRACTABLE and REGULAR type Cords with Neoprene Jackets . . . for all makes and types of Telephone instruments.

AND DID YOU KNOW that Commercial Switchboard Cords are now available with or without plugs?

Write for Catalog and Samples

COMMERCIAL CORD & SUPPLY CO. INC.

26 E. Main St. • Clifton Springs, N. Y.

Phone: CLIFTON SPRINGS 189

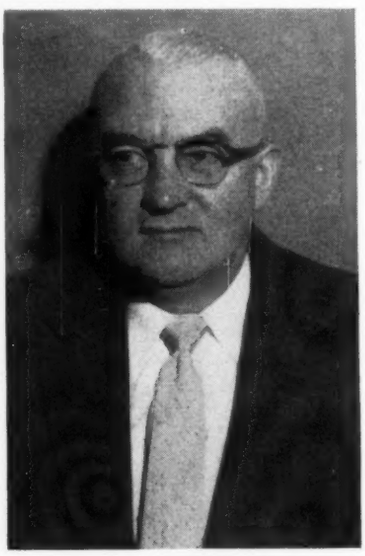
General Company of Wisconsin Promotes Three Men

An organizational change within the General Telephone Co. of Wisconsin has resulted in the promotion of the following men: Herman P. Siebken, Richard A. Schultz and Arthur W. Raffill.

Mr. Siebken, who has been associated with General of Wisconsin for 31 years,

H. P. SIEBKEN

became operating vice president, a newly created executive position in the company. Prior to his appointment, he was vice president, chief engineer and general plant manager. Mr. Siebken is



R. A. SCHULTZ

a graduate of the University of Wisconsin and holds a degree in mechanical engineering.

Mr. Schultz has assumed the duties of chief engineer. A graduate of Kansas State College where he received a degree in electrical engineering, Mr. Schultz has been with the General company since Feb. 1, 1936. He formerly served as assistant chief engineer and was promoted to that position in December, 1952.

A. W. RAFFILL

Mr. Raffill, who has been associated with the company since 1937 and has served in various capacities including district plant supervisor and general plant superintendent, has assumed the duties of general plant manager. Mr. Raffill is a graduate of the University of Wisconsin and holds a degree in electrical engineering.

V V

Michigan Bell Creates Post of Merchandising Vice President

Clifton W. Phalen, president of the Michigan Bell Telephone Co., has announced the creation of a new vice presidency of merchandising in the company, effective Dec. 1.

William E. Shane, general commercial manager, was elected to the new post by the company's board of directors. He will report to William M. Day, vice president and general manager.

Mr. Day announced the appointment of J. L. Conroy, assistant vice president, as general commercial manager to succeed Mr. Shane.

In announcing the new vice presidency, Mr. Phalen said the post is being established "to concentrate more attention on the problem of providing all customers with the best possible service with particular emphasis on meeting the changing and expanding needs and desires of telephone users."

Mr. Shane takes over the new vice presidency in his 32nd year with Michigan Bell, all in the company's commercial department. He started as a commercial agent in 1922 after attending Kalamazoo College.

After varied promotions, Mr. Shane

Gosh–

It never rains
it just pours!

—

So — we've got
plenty of work to do!
How about you?

—

If you want —
our help —
Let us know!
you need not yell!

—

Just call us by 'phone
HUdson 8-0611
Columbus (12) Ohio

—

Always at your service

—

GUSTAV HIRSCH ORGANIZATION, INC.

1347 WEST 5th AVENUE

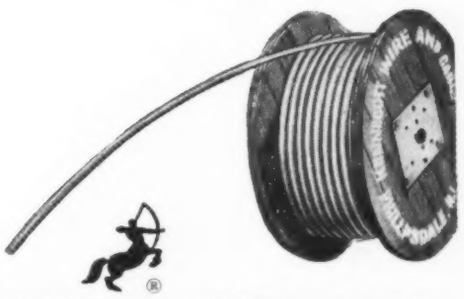
A GREAT NAME IN CABLE...

KENNECOTT

Kennecott Telephone Cable is known throughout the nation for its high quality.

This reputation has been achieved by careful attention to every last detail. Constant checking and testing of materials and methods of manufacture makes Kennecott a name to remember whenever you're ordering cable.

For information on Kennecott Telephone Cable call any of the Chase sales offices listed below.



CHASE BRASS & COPPER CO.

Waterbury 20, Conn.

DISTRIBUTOR FOR

KENNECOTT WIRE & CABLE CO.

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CHASE WAREHOUSES and OFFICES:

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Boston	Dallas	Houston	Milwaukee	Pittsburgh	Waterbury
			Minneapolis	Providence	(2 sales
			Newark	Rochester†	office only)

was named central division commercial superintendent at Saginaw in 1938 and four years later went to the southern division headquarters at Grand Rapids in a similar capacity. After a few months, he was transferred to Detroit as division commercial superintendent.

Mr. Shane was named general commercial manager in 1945 with supervision over all of the company's commercial activities.

Mr. Conroy started with Michigan Bell's commercial department at Pontiac in 1929 and held various posts there and in Flint before he became division commercial superintendent at Saginaw and later at Detroit. He was made assistant general commercial manager in 1952. He was named assistant vice president last July.

V V

Argentine Telephone Contract

The Argentine government on Nov. 23 announced signing of a 108-million-dollar contract with Siemens & Halske of Munich, Germany, to establish a factory in Buenos Aires and supply Argentina with 300,000 telephone lines with automatic switchboard equipment.

Sen. ANDREW J. SORDONI, chairman of the board of Commonwealth Telephone Co., Dallas, Pa., and a director of the United States Independent Telephone Association since 1950, also has been elected president of the American Automobile Association, an organization with 4½ million members.

Holtzer-Cabot Honors Veteran Vernon Durbin

A man whose career parallels the rise of the telephone and signal industries was the guest of honor at a dinner given by one of the oldest companies in the field on Nov. 15, at the University Club in Boston. He is Vernon Durbin, who was honored for 50 years of distinguished service with the Holtzer-Cabot Divisions of National Pneumatic Co., Inc., of Boston, Mass.

Mr. Durbin, who is the company's associate director of engineering, has made many outstanding contributions to the telephone and signal industries. He is the holder and co-holder of 29 patents and has three applications pending. These inventions date from 1913 to 1954. His first patented invention was a transmitter for a selective signaling system, patented in 1913. The most recent patent was issued last January for a thermo-electric door operating system which Mr. Durbin and Charles T. Button, sales manager of the Holtzer-Cabot Motor Division, developed together.

Mr. Durbin's inventions include: Paging and fire alarm systems, annunciators, measuring instruments, telephone testing equipment, loud speakers, telephone receivers, time relays, distribution panels, circuit controlling apparatus, a traffic-operated traffic signal and a fire detection device.

Mr. Durbin's career extends back to the days when the discoveries of experimenters in the electrical sciences were first commercially applied. A native of Ohio, Mr. Durbin joined the Holtzer-Cabot Electric Co. in 1904

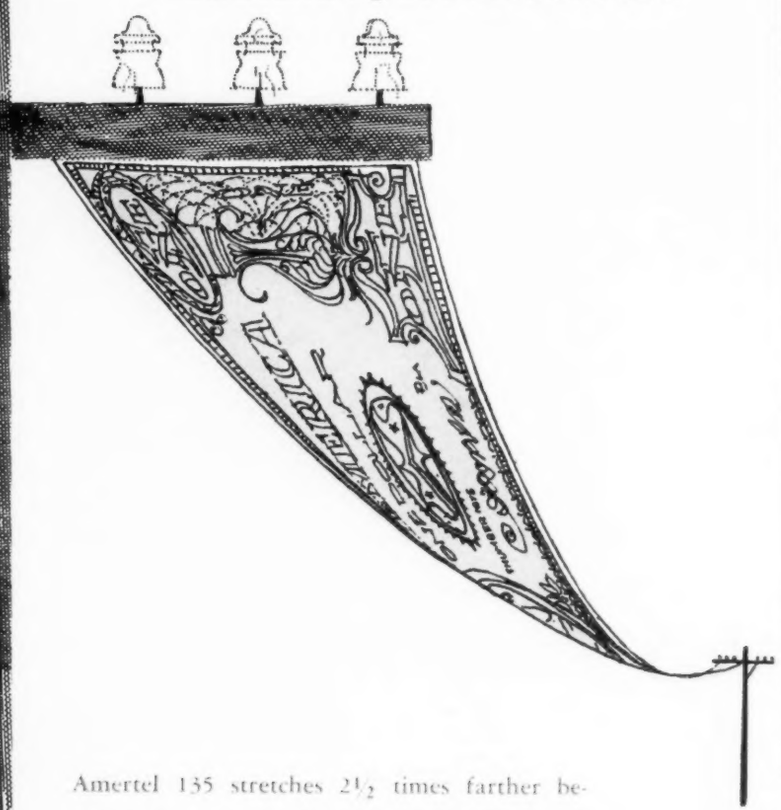
buy Automatic's APPROVED supplies

highest quality
biggest line
fastest service

buy Automatic's APPROVED supplies

Amertel Long-Span Wire

stretches your Dollars too



Amertel 135 stretches 2½ times farther between two poles than ordinary BB wire. This means over a 50% cut in poles, hardware, installation and maintenance costs. And transmission quality is excellent with low electrical resistance. Call or write us now for prices.

Recommended and sold through our distributors

AUTOMATIC ELECTRIC

Distributors in U. S. and Possessions: AUTOMATIC ELECTRIC SALES CORPORATION
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1033 West Van Buren Street, Chicago 7, U. S. A.

VERNON DURBIN (left) receiving congratulations from RICHARD FROST at the anniversary dinner tendered Mr. Durbin in Boston in honor of his 50 years of service with the Holtzer-Cabot Divisions of National Pneumatic Co., Inc.

when its plant was located in Brookline, Mass. At that time, the company was owned and managed by the late Charles W. Holtzer who founded the organization in 1875 and who manufactured some of the parts used in the first telephone by Alexander Graham Bell. Holtzer-Cabot Electric Co. became the Holtzer-Cabot Divisions of National Pneumatic Co., Inc., when the two concerns were merged in 1949.

Mr. Durbin was first employed in the company's testing departments. In this capacity he participated in the development of communications systems for naval craft. At that time, the United States Navy was the leading sponsor of large-scale electrical and communications systems. In 1905, the Navy installed its first fire control systems, providing communications between the central station, gun rooms, torpedo rooms, etc., on ships of the Atlantic fleet. A year later, Holtzer-Cabot Electric Co. supplied the telephone equipment for the fleet which President Theodore Roosevelt sent around the world.

Mr. Durbin was personally responsible for the first generator-powered wireless communications between air and earth. In 1912, the U. S. Army Signal Corps, of which the air force was then a component, commissioned Holtzer-Cabot to build a generator and transmitter for use in an airplane. The generator weighed 25 pounds, and was capable of developing 500 cycles and 250 watts. It was the first generator ever to supply power in an airplane. The transmitter was a "quenched gap transmitter."

"My job was to install the set in one of the Wright brothers' planes at College Park, Md.," Mr. Durbin recalls. "The first attempt was a failure. In connecting the generator, we rigged up a chain and sprocket system that weighed more than the generator. The result was that the combined weight of the generator, transmitter and all the connections proved so heavy the plane couldn't get off the ground."

A simpler system was then devised which was operated by the pilot's pressing his knee against a switch whenever he wanted to transmit. This method was satisfactory and the occasion marked the first generator operated wireless communication between air and ground. In fact, the transmitter developed by Holtzer-Cabot could transmit a distance of 50 miles —which was the limit the U. S. Army would allow the plane to fly.

During most of his career, Mr. Durbin was chief engineer of the company's signal department and was responsible for its development of various signal products. These included signaling systems for hospitals, paging systems, annunciators, time clocks, fire and burglar alarms. Many of these products are still in operation and are still being produced.

Although his work once involved considerable supervisory duties Mr. Durbin now devotes all his time to design work, an aspect of engineering he prefers.

The 50th anniversary dinner tendered Vernon Durbin marks but a milestone in his busy career. As associate director of engineering at Holtzer-Cabot, he plans to continue contributing to the advancement of the communications industry.

V V

Mathias Klein & Sons Moves To New Plant in Skokie, Ill.

Mathias Klein & Sons, one of Chicago's pioneer industries, has just moved to its new plant and office located at 7200 McCormick Rd., Skokie, Ill. The mailing address is Mathias Klein & Sons, 7200 McCormick Rd., Chicago 45, Ill.

This Chicago firm was established in 1857 by Mathias Klein who came from Germany and started a small forge shop not far from what are now Jackson and Dearborn Sts. With the extension of telegraph lines, the need for various linemen's tools became evident, and Mr. Klein proceeded to meet these demands. Through the years Mathias Klein & Sons has grown, but it has always remained a family organization, and today's president, Mathias A. Klein, is a grandson of the founder.

For many years Mathias Klein & Sons factory and office were located at 3200 Belmont Ave., Chicago, but the

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Frequency Modulated
Subscriber Carrier

Delivering! Yes, but awfully slow. Our own men are making each and every installation.

Results: We will have a most complete "How to Install Book" based on our own actual experience.

We earnestly solicit your continued patience. We promise you our carrier is worth waiting for.

$1180. per Channel

McELROY
MANUFACTURING CORP.
Littleton, Massachusetts, U.S.A.

unusual
bleeding
or discharge

...is one of the seven commonest danger signals that *may* mean cancer...but should *always* mean a visit to your doctor.

The other six danger signals are —Any sore that does not heal ...A lump or thickening in the breast or elsewhere...Any change in a wart or mole... Persistent indigestion or difficulty in swallowing...Persistent hoarseness or cough...Any change in normal bowel habits.

For other facts about cancer that may some day save your life, phone the American Cancer Society office nearest you, or write to "Cancer"—in care of your local Post Office.

American Cancer Society®

Look to the Leader

KLEIN

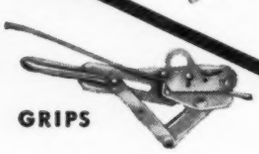
for Quality

CLIMBERS

PLIERS

SAFETY BELTS

SAFETY STRAPS



GRIPS

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Mathias KLEIN & Sons

Established 1857 — Chicago, Ill., U.S.A.

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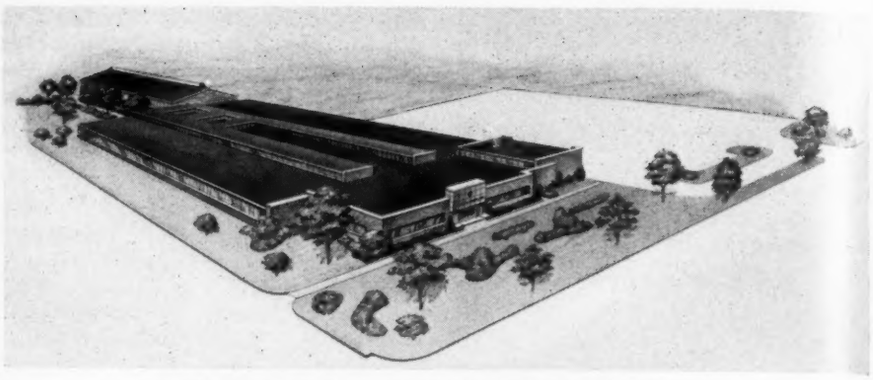

Mathias Klein & Sons new plant and office in Skokie, Ill.

buildings are now to be demolished to make room for the Northwest Superhighway out of Chicago.

In building the new plant, Mr. Klein chose an area that is fast becoming a showplace of industrial development. The new Klein plant houses the latest machinery and equipment in its 110,000 square feet of space, the company states. The single-story design permits maximum efficiency in straight-line production of the many products manufactured by the company, it is reported. Mr. Klein stated that every employe went with the company to the new plant. He felt this was a tribute to the loyalty of the whole Klein "family of employes," a large percentage of whom have been with the company for many years.

M. A. KLEIN

Cook Electric Names Burton Head of New York Office

Charles H. Brunell, sales manager vice president of Cook Electric Co., has announced the appointment of Charles Burton as manager of the eastern sales division. Its New York office is at 380 Madison Ave., New York 17, N. Y.

CHARLES BURTON

Mr. Burton joined Cook Electric Co. from Federal Enterprises, Inc., Chicago, Ill., where he was assistant to the president. He is also consultant to the Federal Civil Defense Administration on air raid warning systems on prime target areas in the United States as well as at air stations, naval bases, and similar installations.

V V

"We in industry know that our march of progress will require an environment which encourages us to push forward. The essential ingredients of such an environment are freedom and understanding. . . . Whenever limitations have been imposed upon freedom, the progress of science and industry has faltered. . . . We believe it of the utmost importance that American industry today have the understanding of the people [and the winning of it] is a task that challenges the efforts of all industry."—WILLIAM H. WARD, vice president, E. I. du Pont de Nemours & Co.

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"We live under a government of men and morning newspapers."—WENDELL PHILLIPS.

BASAL BARK TREATMENT requires all-around coverage of the basal area from the ground line upward 15 inches. Wet thoroughly until run-down or run-off is apparent. This method controls small brush and scrub trees in any season, keeps equipment busy.

BASAL BARK TREATMENT GIVES GOOD CONTROL IN ALL SEASONS

Spraying brush and trees with ESTERON 245 is effective all months of the year

Fresh-cut stumps may be treated in any season to prevent resprouting. Thorough coverage of entire stump, including the cut surface, all exposed roots and especially *all* the bark down to the ground line, is a "must."

Basal spraying may be done any month in the year. It should be planned to supplement your regular foliage spraying program, to keep your crews busy and your equipment in use the year around. This practice—spraying Esteron® 245 in oil on the basal 15 inches of brush stems or tree trunks—makes it easy to put the killing power where you want it.

Basal treatment with this product is done with a knapsack sprayer or with power equipment. It gives good results, regardless of the size of trees, provided that the basal area is thoroughly drenched to the point of run-off. Spraying cut stumps to prevent resprouting may also be done all months of the year.

Ask your supplier how Esteron 245 fits into a low-cost, year-around brush control program. Or write THE DOW CHEMICAL COMPANY, Agricultural Chemical Sales Department, Midland, Michigan. In Canada: Dow Chemical of Canada, Limited, Toronto, Canada.

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